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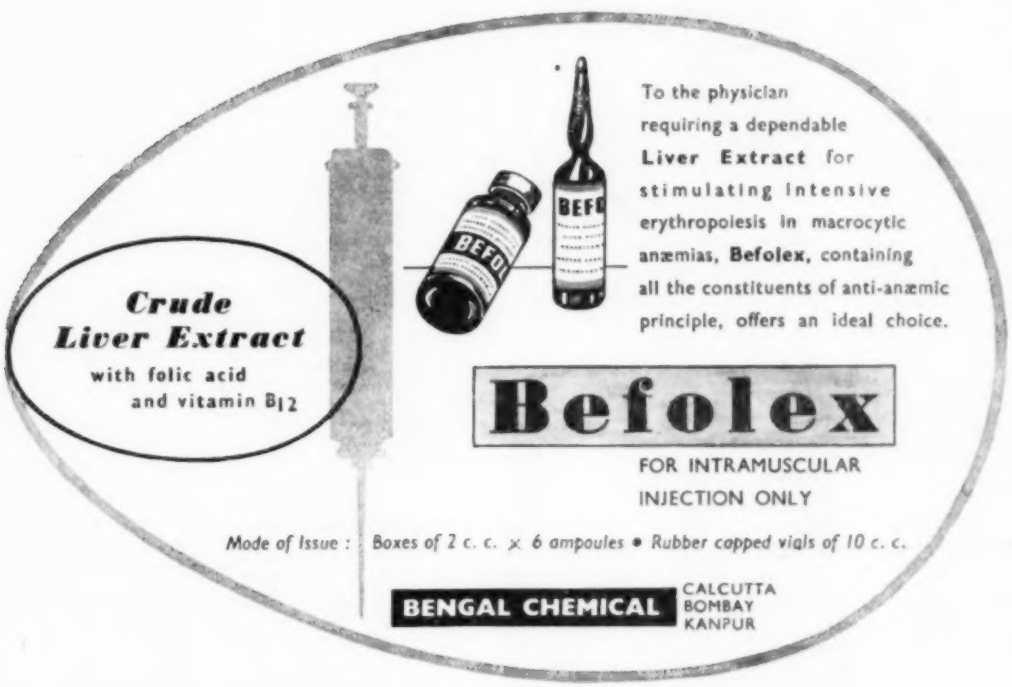
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APPLICATIONS are invited from citizens of India or persons who have migrated from Pakistan with the intention of permanently settling in India and subjects of Nepal, Sikkim or Portuguese possessions in India for appointment to the post of one Pathologist, one Entomologist, one Lecturer in Public Health and Sanitation and a number of posts of Assistant Surgeon Grade I in the North East Frontier Agency, in the scale of pay of Rs. 225-20-425-(EB)-25-600/- plus a special pay @ Rs. 33⅓% of basic pay subject to a minimum of Rs. 125/- and the maximum of Rs. 250/- while serving in the Tribal Areas of North East Frontier Agency, plus a Non-practising Allowance of Rs. 100/- P.M. for which private practice is strictly forbidden, plus Dearness Allowance @ Rs. 17½% of Pay and Special Pay if any, will be admissible in case of married officers and Rs. 30/- P.M. for bachelors. The Non-practising Allowance to candidates applying for the post of Entomologist will be admissible only in case of Medical graduates. For the post of Pathologist, Entomologist and Lecturer in Public Health and Sanitation, higher initial pay will be considered to the deserving candidates.

2. In addition to above, the candidates will be entitled to the following :—

(a) Free accommodation of a simple type, and furniture, as available, while posted in the Tribal Areas of NEFA.

(b) Accommodation, if available, subject to the recovery of house rent of 10% of pay if posted to a station outside the Tribal Areas of NEFA.

(c) If posted at Shillong, no accommodation will be provided but house rent allowance as admissible to Central Government servants posted at Shillong will be allowed.

3. The posts are at present temporary but are likely to be made permanent.

4. I. **Qualifications** :

(i) **Pathologist** :—Candidates must be Medical graduates having post-graduate degree or diploma in Pathology and Bacteriology and should have previous experience in a Research Institution.

(ii) **Entomologist** :—Candidates must be B.Sc. or M.Sc. in Medical Entomology from a recognised university with sufficient experience or Medical graduates (M.B.B.S.) with adequate training in Medical Entomology.

(iii) **Lecturer, Public Health and Sanitation** :—Candidates must be Medical graduates from a recognised university having diploma in Public Health.

(iv) **Assistant Surgeon I** :—Candidates must be Medical graduates from a recognised university.

II. **Age** :—A candidate must be under 25 years on the date of joining the post, but relaxation will be made in the case of (i) Scheduled Castes and Scheduled Tribes by 5 years, (ii) Refugees up to 45 years and (iii) those already in Government Service and other exceptional cases.

5. Applications stating the following particulars should reach the Director of Health Services, North East Frontier Agency, Shillong by 30th January, 1959.

(a) Name of Applicant (in block letters),
(b) Father's name,
(c) Age on 1st December, 1958,
(d) Whether married or single,
(e) Community,
(f) Present Address,
(g) Permanent Address,
(h) Academic Qualifications,
(i) Special Qualifications,
(j) Previous experience.

6. Save in the case of candidates belonging to Scheduled Castes and Scheduled Tribes, Political Sufferers, War Service Personnel and North East Frontier Agency Tribals, a copy of Treasury Receipt for Rs. 5/- must accompany each application. The application fee of Rs. 5/- should be credited into a local Treasury under the "Central Head XXXVI—Miscellaneous Deptt.—Misc.—Application Fees—NEFA."

Preference will be given to Hill Tribals and other Scheduled Castes and Scheduled Tribes candidates. Those who are in Government Service should apply through proper channel.

P. D. GOGOI,
Offg. Director of Health Services,
North East Frontier Agency, Shillong.

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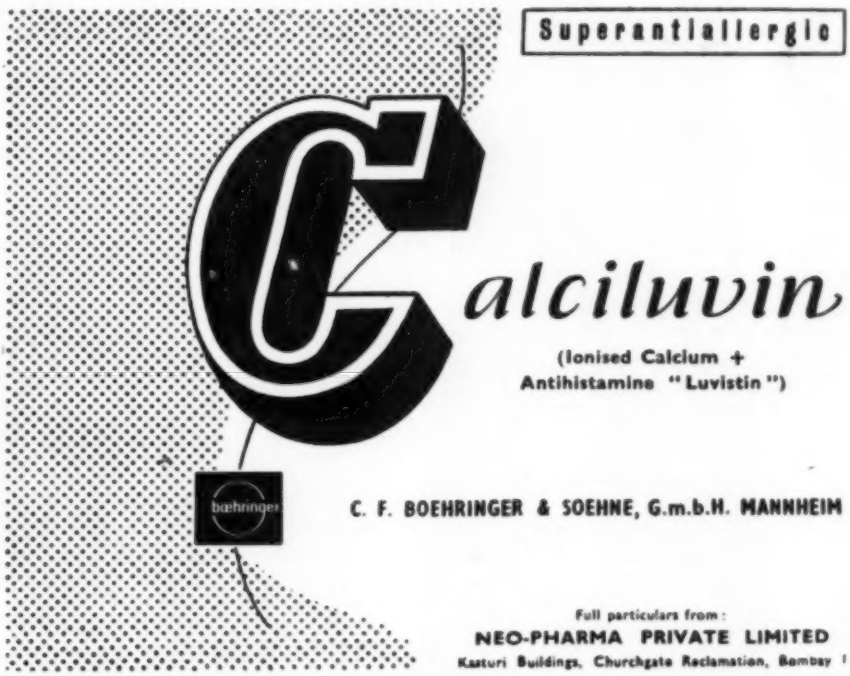

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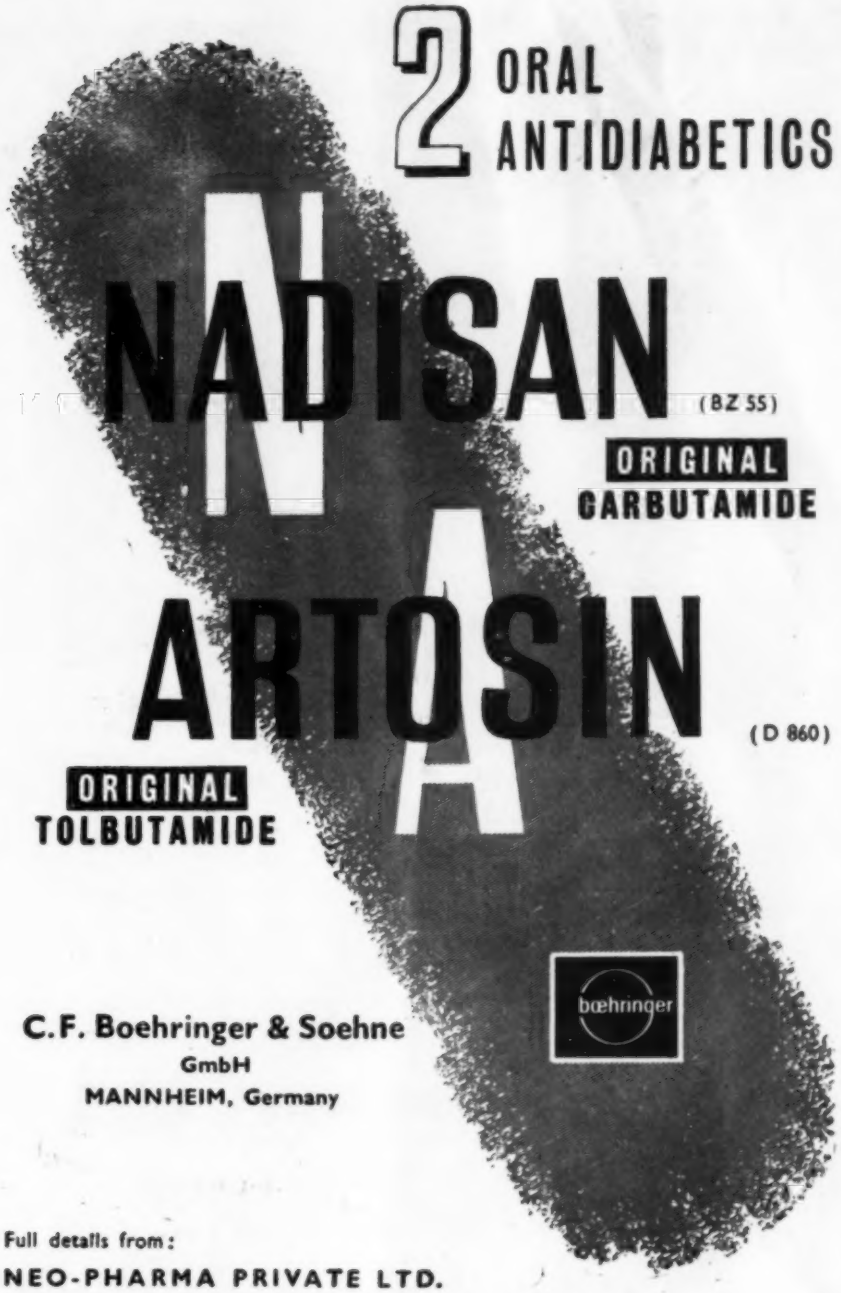

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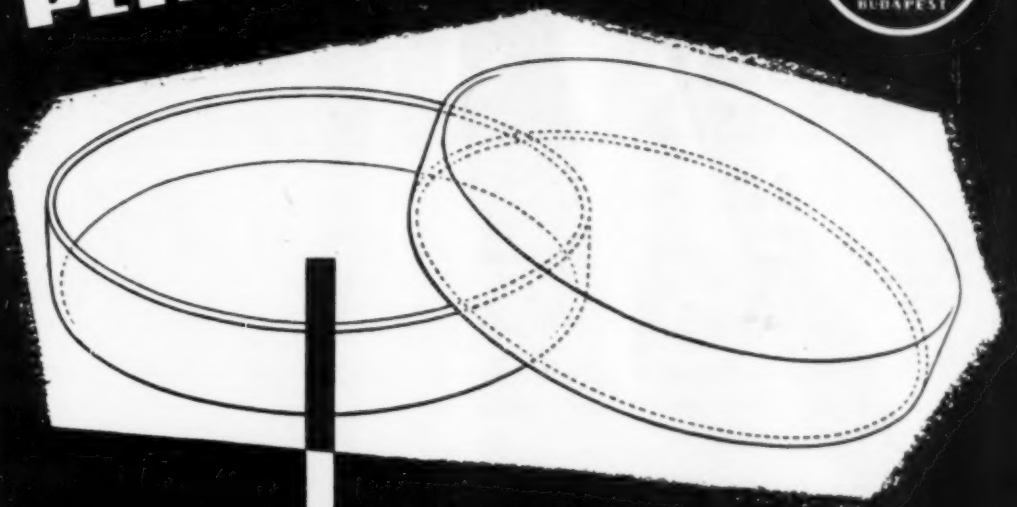

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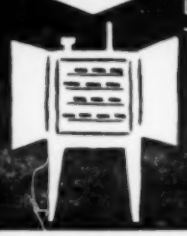

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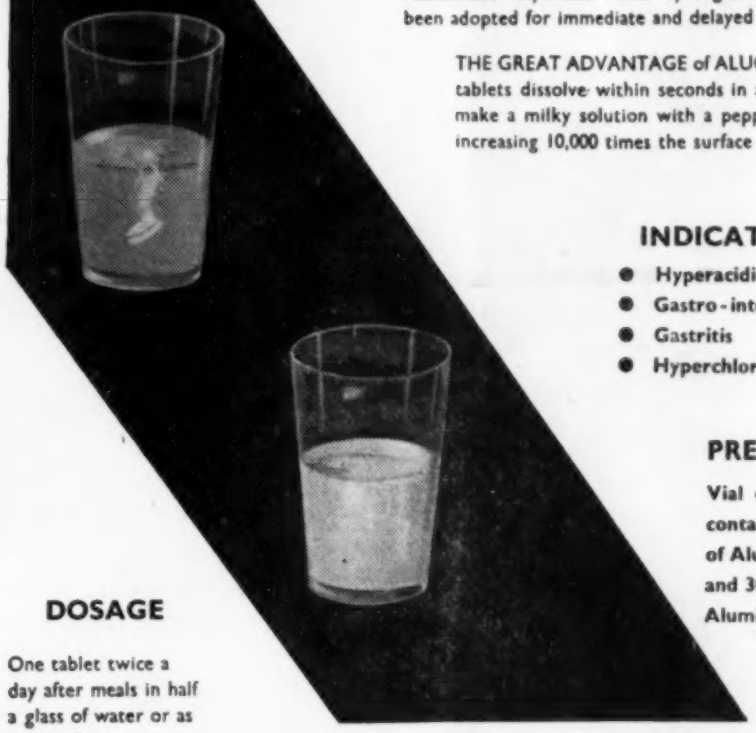

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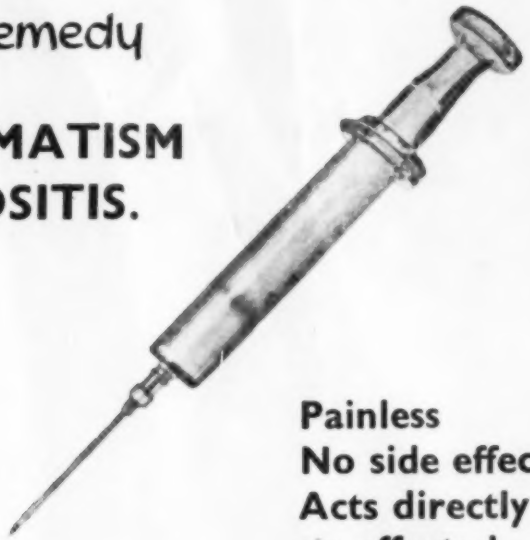

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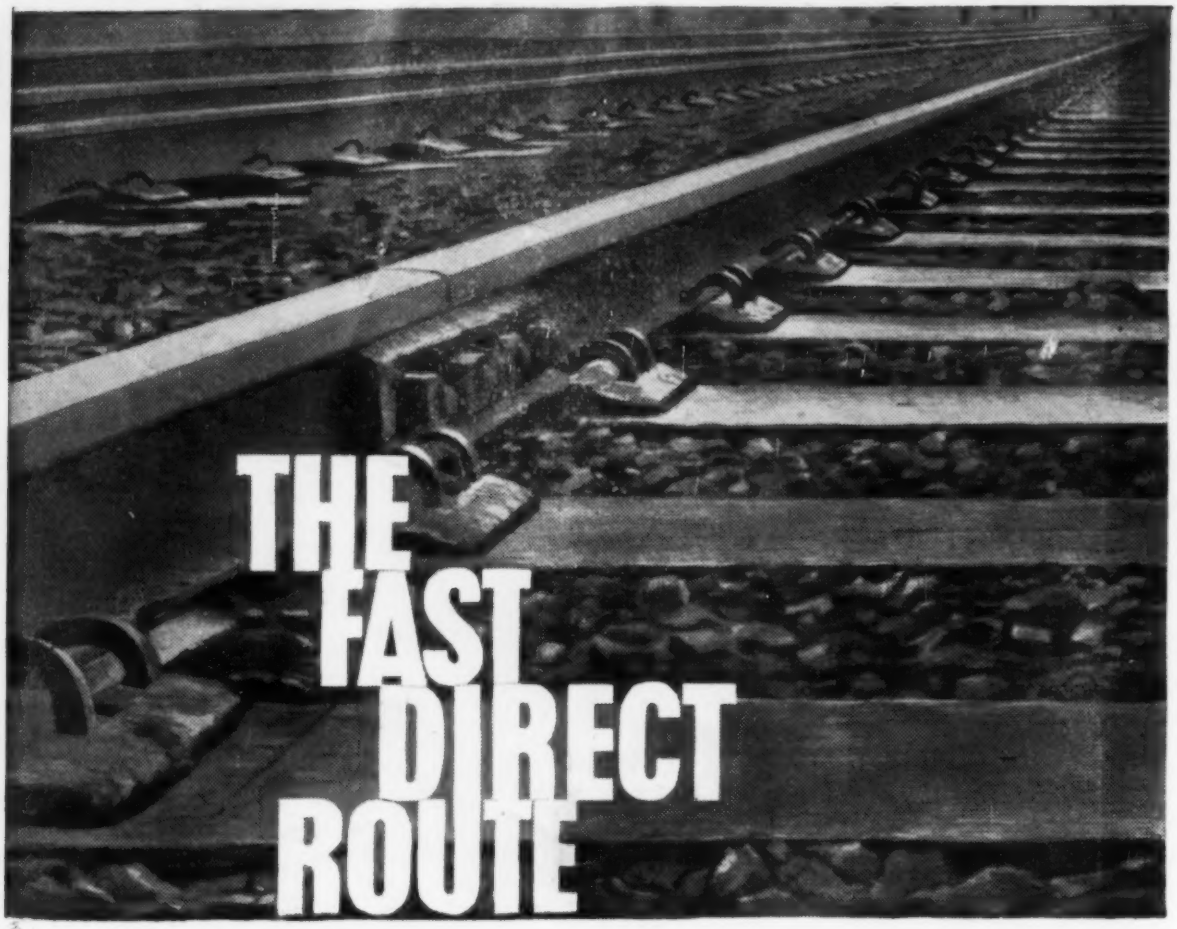

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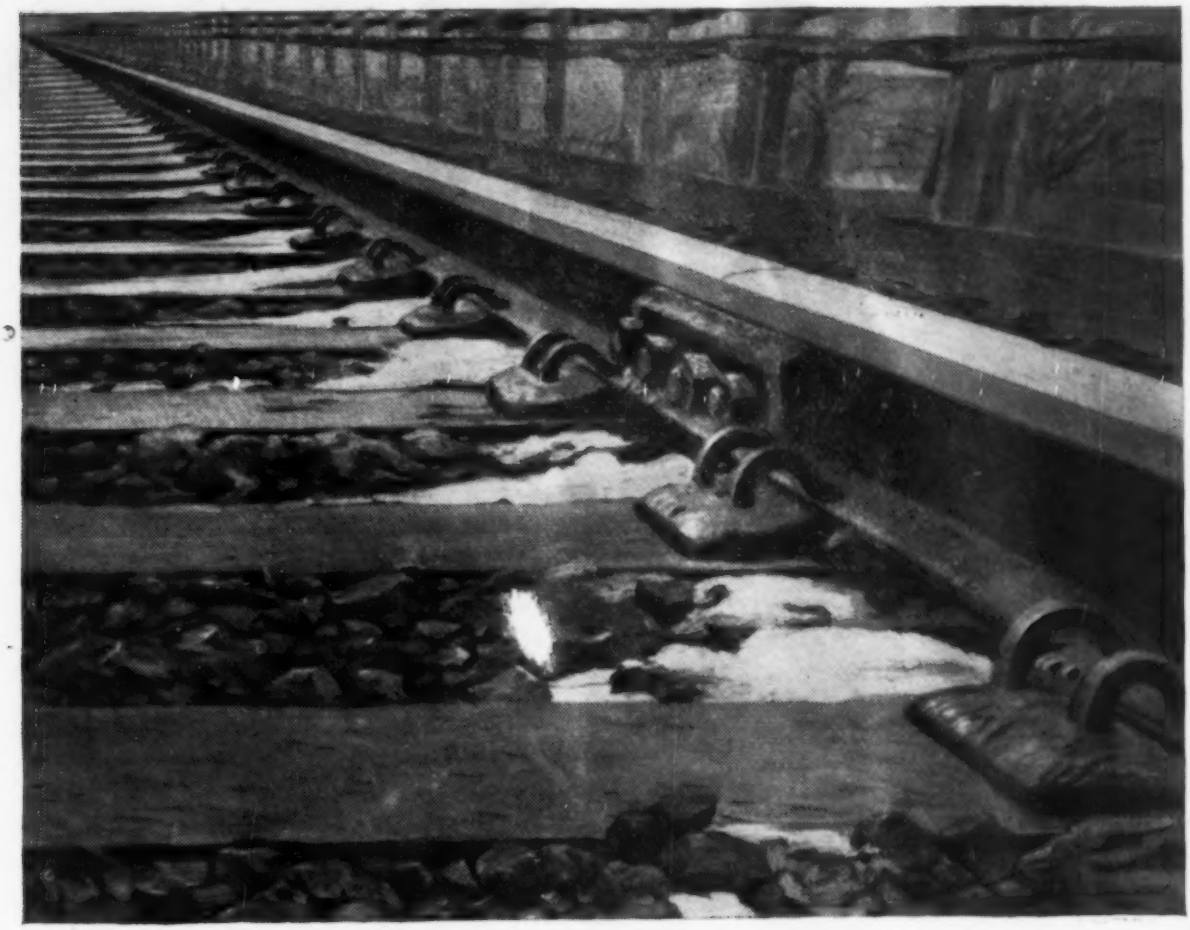

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ORIGINAL ARTICLES

SURGERY OF THE RHEUMATIC HEART*

REEVE H. BETTS, M.D., V. K. SAINI, M.B.B.S., F.C.C.P., F.A.C.A., AND T. THOMAS, M.B.B.S., F.A.C.S.

From the Cardio-thoracic Service, Christian Medical College and Hospital, Vellore, S. India

The current era of cardiac and vascular surgery has offered the first opportunity to deal effectively with the chronic invalidism resulting from mechanical deformation of the cardiac valves in patients with rheumatic heart disease. The problem of such patients is of greater importance than the treatment of congenital heart disease for both social and economic reasons. Rheumatic heart disease is more common than the congenital variety and frequently affects individuals in their early or middle periods of active life. In 1953 it was estimated that about a million people were affected by mitral stenosis alone in U.S.A. Contrary to earlier teaching, rheumatic heart disease is a comparatively frequent lesion in India. The incidence is probably almost as high as in Western countries. Medical treatment is effective in the early phases of the disease, but cannot abolish the basic valvular deformities and usually fails to improve the situation beyond certain limits.

HISTORY

As early as the turn of the century several authors proposed an operative approach in the treatment of valvular deformities, mostly mitral stenosis. It was not until 1913 that the first patient with acquired valvular disease was operated upon. Tuffier (1914) so treated a young man with aortic stenosis, invaginating the wall of the aorta with the finger and thus dilating the valve. The patient survived and was improved for several years. The first successful operation for mitral stenosis was performed by Cutler in 1923 (Cutler and Beck, 1924) approaching the valve through the left ventricle. The first era of mitral surgery followed this. Several surgeons attacked the mitral valve using either the ventricular or the auricular route but with unsatisfactory results. The operation fell into disrepute for almost 25 years when a renewed approach was ventured. Various surgical procedures were attempted, such as an anastomosis between a branch of a pulmonary vein and the azygos vein, creation of an interauricular septal defect, etc., all being done in an attempt to relieve the pulmonary congestion. These were only palliatives and most were soon abandoned as the direct approach of the mitral valve became an established procedure. Following the pioneer work of Harken *et al* (1948), Bailey *et al* (1950) and Baker *et al* (1950) with which all are familiar, surgical correction of mitral stenosis became a widely used method of treatment with usually good and sometimes excellent results.

It may be stressed that the diagnosis of valvular lesions affected by rheumatic disease can usually be made by any physician by a good history, physical examination and roentgenological and electrocardiographic examinations. The use of complicated procedures such as right or left heart catheterisation and angiocardiography are

* Presented as the Tapan Kumar Memorial Lecture, at the Calcutta Branch of the Indian Medical Association, 1958.

not necessary and are required only in a few complicated cases.

This paper will not discuss the diagnostic aspect of the disease but will be confined to the selection of cases for surgery, their surgical aspects and the results obtained.

Aortic Valve

A bicuspid aortic valve is easily attacked by a rheumatic or bacterial infection. Aortic valvular lesions may be present in an ordinary tricuspid or in a deformed bicuspid aortic valve. During the acute stage of rheumatic infection, rheumatic nodules situated along the margins of the cusps cause fibrous adhesions between them. In addition the cusps may undergo considerable shortening as a result of rolling of the free margins toward the aortic wall ; in consequence, aortic regurgitation will develop when the infectious phase passes over into healing. Except for this, aortic valvulitis tends to cause marked stenosis.

Experimentally, the aortic orifice must be narrowed to between 60 and 70 per cent of its original diameter before cardiac output is reduced. Nevertheless narrowing of 15-30 per cent is sufficient to cause audible and recordable murmurs. The performance of the left ventricle varies according to the degree of aortic valve narrowing. In severe stenosis the intraventricular pressure rises to several times normal. The aortic systolic and pulse pressures are typically decreased. The diastolic pressure is elevated or normal. There is a definite systolic gradient across the aortic valve, which can be measured by catheterisation (Figs. 1A, 1B). These typical features may be modified if arterial hypertension or free aortic regurgitation co-exists.

Fig. 1A—Showing Cardiac Catheterisation Tracing Indicating Pressure Levels in the Aorta and the Ventricle.

The clinical symptoms of aortic stenosis are usually due to the decreased cardiac output, as a result of which coronary flow is lessened at a time when the hypertrophied left ventricular wall requires a larger blood supply. This situation causes

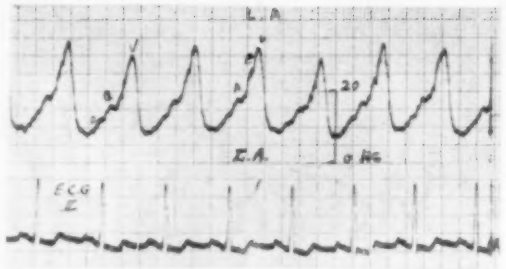

Fig. 1B—Showing Cardiac Catheterisation Tracing Indicating Pressure Level in the Left Auricle.

typical angina pectoris and occasionally syncopal attacks.

The increased work of the left ventricle causes marked muscular hypertrophy, detectable both in the E.C.G. and roentgen investigations but signs of left ventricular failure with pulmonary oedema usually occur only late in the disease. Once present, however, left ventricular failure reacts poorly to medical treatment and advances rapidly via subsequent right heart failure to a fatal outcome.

The obvious mechanical nature of the disturbance has encouraged several surgeons to suggest ways of relieving the stenosis. The first successful operation, as previously mentioned, was performed in 1913 by invaginating the aortic wall.

Glover and O'Niell (1950) tried the ventricular approach in one case but the patient died on the table. They then devised a new approach through the carotid artery and were able to perform successful aortic commissurotomy in three out of five cases. For several reasons this method was also unsatisfactory.

At present two approaches are being used, one through the ventricle and other through the aorta and the aortic valve has been dilated by various ingenious instruments. Bailey (1955) and his group have done the maximum number of cases, many with good results. But there are many other problems related to aortic stenosis, especially associated mitral stenosis and tricuspid stenosis. Often aortic stenosis is associated with aortic regurgitation or regurgitation may result because of aortic commissurotomy. The stenotic aortic valve is always heavily calcified and so results have sometimes been rather discouraging. However, certain patients with aortic stenosis, either isolated or in association with other valve lesions, should be given the benefit of surgery as that is their only chance. It is probable that the problem will come much nearer solution with the application of open operation by use of an artificial oxygenator. Early results are encouraging. We have had no

experience in the surgical treatment of aortic stenosis.

A minor degree of aortic incompetence is almost always present in rheumatic aortic stenosis. But sometimes aortic incompetence is dynamically the more important lesion. It is less severe when of rheumatic origin as compared with luetic infection. Aortic regurgitation has a more rapidly deleterious effect on the heart than aortic stenosis. Left ventricular hypertrophy and dilatation apparently develop simultaneously and the heart becomes very large (Fig. 2A, *vide* Plate). The tremendously enlarged left ventricle then leads to mitral incompetence, which causes dilatation and hypertrophy of the left auricle. When signs of failure have appeared, the progress of the disease is usually rapid. It is difficult to restore compensation by medical means and succeeding bouts of failure follow which may not be amenable to treatment.

Many operative procedures, like the pericardial flap of Bailey (1955) have been tried, but with poor results. Hufnagel *et al* (1954) has developed an artificial plastic valve that is placed in the descending aorta. The amount of regurgitating blood is diminished, with decreasing heart size (Fig. 2B, *vide* Plate) and better function. The arterial pulse distal to the plastic valve is normalised with unaltered pulse pressure proximal to the valve. The operation still carries a significant mortality and the long-term fate of the valve is as yet not known, but many patients have been materially benefited.

We have operated on four cases of aortic regurgitation inserting the Hufnagel valve in the descending aorta (Figs. 2C, *vide* Plate). All four patients are considerably improved to date.

Mitral Valve

The mitral valve is the one most commonly involved by rheumatic disease and often is the only one affected. Like the aortic valve, rheumatic heart disease may produce pure mitral stenosis, or it may be associated with regurgitation. Rarely it produces pure mitral regurgitation.

The operation of mitral valvotomy for mitral stenosis has passed through its pioneer phase and has emerged as a reasonably satisfactory procedure permitting direct surgical relief of the stenosis. Basically the decision regarding surgery should be reached by balancing the estimated risk and anticipated benefits of the contemplated surgery against those of conservative management, and then choosing the method of treatment considered best for the individual patient. This is particularly true when the surgical procedure is so new that the long-term prognosis after operation is not yet known and when it carries with it a significant mortality rate. In the problem of mitral stenosis it soon became apparent that a more intimate knowledge of the natural history of the disease was necessary, in order to judge which patients should be operated upon. A study of the natural history of 171 cases of mitral stenosis was carried out by Bigelow and Greenwood (1954).

To make this study of practical value to those selecting patients for operation, certain obvious milestones in the downhill course of patients suffering from mitral stenosis were recognised, and the prognosis from these points were assessed statistically. Three milestones were used:

Severe pulmonary congestion—This was used when the patient was short of breath on climbing one ordinary flight of stairs, or on walking one block at an ordinary rate (Group II of American Heart Association Classification).

Right heart failure—This was evidenced by oedema and a large liver. At this stage the patients require digitalis in the beginning and diuretics later (Group III).

Auricular fibrillation—It usually though not always occurs at an advanced stage of the disease (Group IV).

Table 1 summarises the result of this study. It is clearly seen that at the end of 15 years there are only 9-20 per cent, alive and those that were alive were severely disabled. Thus it can be concluded that after these milestones are passed, the life-span is usually not long. Likewise this does not consider the morbidity which also is high.

On the other hand patients with a murmur and no symptoms have generally a good prognosis. In Bigelow's series (*loc. cit.*) there were twenty cases which were asymptomatic when first seen. Fifteen years later eleven of these were still asymptomatic and four were dead. The four that died, did not succumb to rheumatic heart disease but to some other causes. Thus in asymptomatic mitral stenosis the prognosis cannot be improved by operation and we believe that operations on the mitral valve for any reason but the relief of symptoms are not justified.

Table 1—Showing Natural History of Mitral Stenosis (From Bigelow)

Onset of	Mortality rate (per cent) (untreated)		
	6 months	5 years	15 years
Severe pulmonary congestion ...	16	50	80
Right heart failure ...	24	60	91
Auricular fibrillation ...	16	50	91

It is our experience that patients with rheumatic heart disease in India do not consult their physicians until they are greatly disabled and thus are much further along in the course of their disease. It is our opinion that all patients suffering from rheumatic heart disease should be referred to a cardiologist for assessment of possible surgery, as soon as they present themselves to the physician and not given a long period of medical therapy.

SELECTION OF CASES FOR MITRAL VALVULOTOMY

Experience has demonstrated that the best results from mitral valvulotomy are obtained in patients with pure mitral stenosis. The criteria of such ideal patients are :

i. Clinical proof of mitral stenosis.

ii. A definite disability due to pulmonary congestion. This should be quite marked or it should have progressed in the two years prior to operation. This disability manifests itself by (a) marked shortness of breath on exertion and (b) attacks of pulmonary oedema.

iii. Absence of other heart lesions such as mitral regurgitation, aortic valvular disease, etc.

iv. Absence of right heart failure.

Patients of this type can be greatly benefited by operation. However one sees many patients who deviate from this pattern, or are further along in the course of their disease. Many of these patients also show marked improvement from operation. At the present time we believe that operative treatment should be offered at any stage of the disease, provided that mitral stenosis is the predominant lesion and that it is thought the patient can survive operation. In a sense this approach constitutes salvage surgery, similar to that in patients with cancer.

OTHER SPECIAL FACTORS INFLUENCING SELECTION :

Age—The age of patients in our series has varied from 9 to 40 years. There have been reports of patients up to 70 years of age being operated upon, though the majority of patients who develop disability due to pure mitral stenosis do so between 30 and 45 years in most series from the West. In foreign countries one rarely encounters disability due to purely mechanical mitral obstruction in patients under 20 years of age. But in India we do see patients at younger ages developing symptoms. We believe this may be due to the lack of proper care and facilities when children have acute rheumatic heart disease.

Some teenage patients with serious disability due to rheumatic heart disease may have complicating rheumatic activity, myocardial disease, severe mitral insufficiency, multiple valvular involvement, marked cardiac enlargement or combinations of these. In the presence of such complications mitral valvulotomy cannot be expected to produce striking improvement.

Rheumatic activity—Most workers consider clinical evidence of active rheumatic fever or carditis as an absolute contraindication to mitral surgery. The primary problem is the difficulty of recognising such activity. The most useful laboratory indication of activity may still be an increase in the E.S.R., otherwise unexplained. Despite all efforts to exclude from operation those patients with active carditis, biopsies of auricular appendages have shown Aschoff bodies in as high as 45 per cent. So far our policy has been to avoid operation in the presence of clinically demonstrable rheumatic activity as long as improvement continues.

History of systemic embolism—A history of systemic embolism is sometimes in itself considered an indication for operation. It does not seem to influence the results adversely, but the disease in this group is often more advanced so that the patients on the whole do not do as well as the average. The risk of dislodging an embolus at the time of surgery is of course a hazard in these patients.

Pregnancy—It is well known that pregnancy often leads to severe pulmonary congestion or acute pulmonary oedema in patients with mitral stenosis. If any patient develops these signs or gives a history of difficulty during previous pregnancies operation should be done as early as possible. Occasionally mitral valvulotomy may be done as an emergency.

Apical systolic murmurs—One of the earliest principles governing the selection of patients for mitral valve surgery was to exclude those with evidence of significant mitral regurgitation. Initially the recognition of mitral insufficiency was based on clinical findings including the presence of an apical systolic murmur. As surgical experience increased, it became obvious that the clinical estimation of the relative degree of stenosis versus insufficiency frequently did not correlate well with the operative findings. Cardiac auscultation is quite reliable in selecting patients with so-called pure mitral stenosis who have loud apical diastolic murmurs but in whom apical systolic murmurs are either absent or faint. Auscultation, however, is particularly unreliable in evaluating the group of patients with prominent, apical systolic murmurs. Such a finding, however, does not guarantee the presence of significant mitral regurgitation. Often, despite a loud, apical systolic murmur the patient has been proved

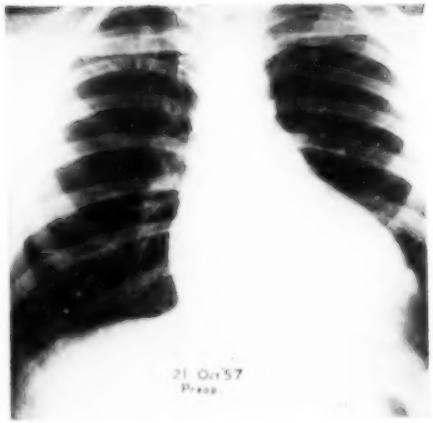

Fig. 2A—Showing marked left ventricular enlargement in a case of aortic regurgitation

Fig. 2B—Showing appearance 14 days after insertion of Hufnagel valve

Fig. 2C—Showing Hufnagel valve in place

BETTS ET AL—*Surgery of the rheumatic heart* (*p.* 37)

Fig. 1 & 2—Showing pigmented lesions on face, trunk, arms, neck, and legs.

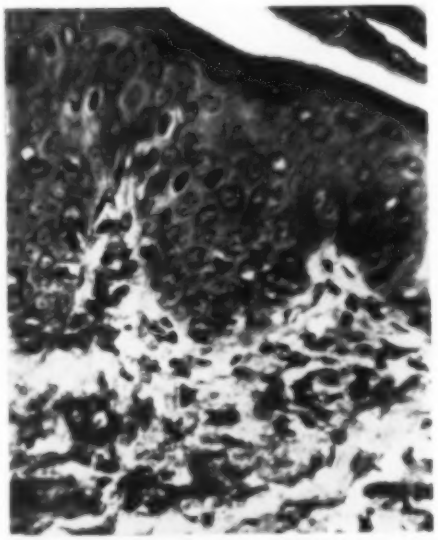

Fig. 3—Showing infiltration of mast cells in the dermis. Toluidine blue (× 200)

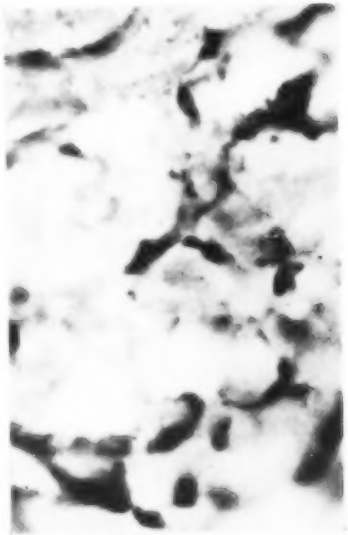

Fig. 4—Showing mast cells with granules. Toluidine blue (× 1200)

CHAUDHURI—*Urticaria pigmentosa* (*p.* 61)

Fig. 1—Showing symmetrical distribution of adenoma sebaceum on the face.

Fig. 2—Showing the renal tumour. a—kidney, b—ureter, c—tumour

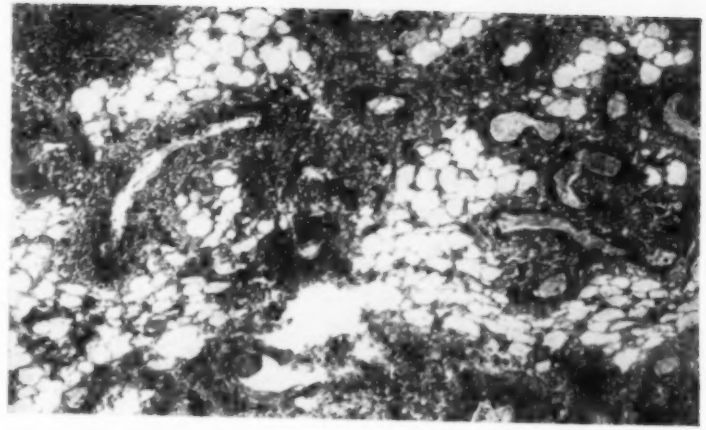

Fig. 3—Showing tumour cells arising from the pericytes of each arteriolar wall. H & E (×50)

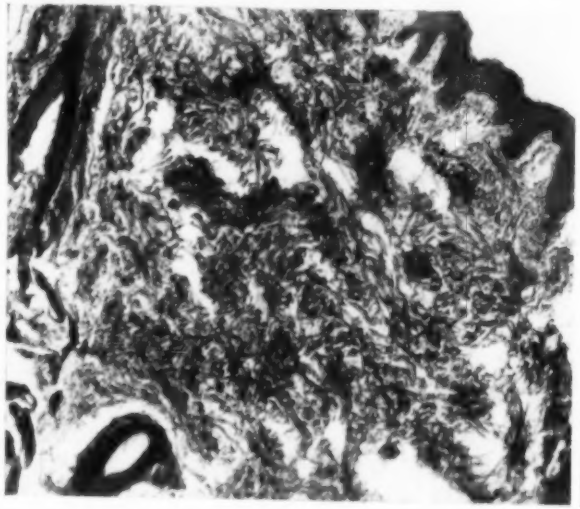

Fig. 4—Showing acanthosis, elongated papillae, perifollicular infiltration, hair follicle, muscle fibres and vascular sinuses. (×50)

ROY CHOWDHURY AND SEN—*Tuberous sclerosis (p. 57)*

Fig. 2—Showing collapse of left lung (19.10.57)

Fig. 3—Showing re-expansion of left lung (22.10.57)

DATEY AND VYAS—*Retrosternal pain simulating myocardial infarction in a case of postoperative atelectasis of the lung (p. 60)*

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to have severe mitral stenosis without significant insufficiency and has derived considerable benefit from mitral valvotomy. In contrast, we have also seen mitral insufficiency present in cases with no systolic murmur. At times the murmur of a tricuspid lesion heard at the apex may be confused with the murmur of mitral regurgitation.

Therefore it is believed that the presence of a systolic apical murmur, even though loud, in a patient with mitral stenosis, does not mean that a good result will not be obtained, but it does make a good result less certain. If the associated diastolic murmur is not definite, the lesion is usually entirely regurgitation.

Various special tests have been used in an effort to recognise significant degrees of mitral insufficiency, e.g., visible pulsations of the left atrium at flouroscopy or increased pulmonary wedge pressures on right heart catheterisation. Combinations of phono-cardiography, ballisto-cardiography and electrokymography have also been used for the same purpose. In some hands angiocardiography has supplied helpful information. Recently left heart catheterisation started by Björk *et al* (1953) and popularised by Fisher (1953) has been helpful. We believe that this gives the best assessment of regurgitation. It permits measurement of pressure directly in the left atrium and also allows one to determine the gradient across the mitral valve. To date we have subjected over 40 cases to left heart catheterisation and have been able to afford surgical benefit to a number of patients who had loud systolic murmurs without evidence of regurgitation on catheterisation.

Fig. 3 is a left heart catheterisation tracing of a patient who had a loud systolic murmur. The tracing is typical of mitral stenosis. A good split was obtained and the patient is considerably improved.

Valvular calcification—In some patients definite calcification of the mitral valve is visible on flouroscopy. We believe that this should be searched for in all patients. In general it is an unfavourable finding which may have an adverse influence not only on the success of valvulotomy from the technical view-point but also increases the hazard of embolism due to calcific particles being dislodged during operation.

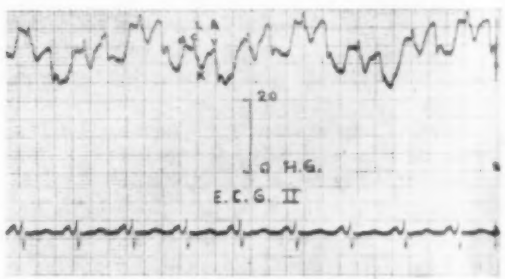

FIG. 3—SHOWING LEFT HEART CATHETERISATION TRACING TYPICAL OF MITRAL STENOSIS.

Auricular fibrillation—The presence of this arrhythmia is not considered a contraindication to operation. These patients do well, provided the ventricular rate can be kept under control by digitalisation.

Size of the heart—Some of our patients with a cardio-thoracic ratio of 60-70 per cent have had excellent functional results following operation. Thus if other factors are favourable, moderate enlargement does not exclude such a patient as a candidate for surgery.

Mitral regurgitation—This has been discussed above under apical systolic murmurs. Sometimes cases operated upon for pure mitral stenosis may have unsuspected mitral regurgitation of some degree. The presence of slight to moderate regurgitation does not mean that a good result will not be obtained. Though it does make a good result less certain, a patient having predominantly mitral stenosis and slight to moderate regurgitation must be given the benefit of surgery.

RESULTS

Mitral valvulotomy is now a routine procedure. Reports of the results of operation have been published from many centres. Most authors indicate that 60 to 70 per cent of operated patients are improved and in many the improvement has been striking. Everyone recognises the difficulty of appraising the postoperative status on the basis of clinical impressions alone. There is a tremendous psychological stimulus from operation and all have had the experience of a patient apparently being much improved subjectively following an unsuccessful attempt to split a mitral valve.

We have operated on 123 patients with a diagnosis of mitral stenosis. A large majority of these have shown quite marked improvement. There were 18 deaths in these cases, a mortality of 14·6 per cent (Fig. 4). This includes the first two operations which were done by a visiting W.H.O. surgeon and both of which died. These results are not as good as many other reported series. Most reports are similar to the recent report of Diveley *et al* (1958) who had a 10·5 per cent mortality rate in 115 patients. It is quite likely that a rate below 5 per cent indicates that many of the more advanced cases are not being given the benefit of surgical treatment. Ducket (1958)

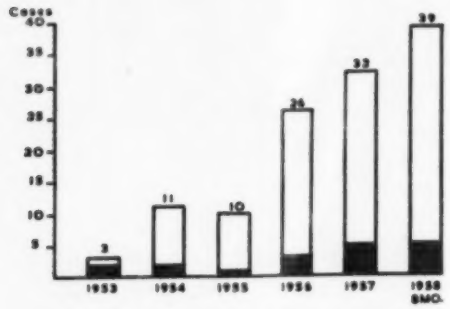

FIG. 4—SHOWING NUMBER OF CASES OF MITRAL STENOSIS OPERATED UPON WITH MORTALITY INCIDENCE (1958 covers up to September 1).

has shown that under ideal conditions with cases carefully selected and operated upon by an experienced surgeon that a mortality rate of under 1 per cent in private patients may be obtained. Such patients are apt to have had the best of care and cardiological advice in the past and also to have been referred for surgery at the optimum time.

The causes of death in our group have been varied. In over 50 per cent, postmortem studies were done. By far the largest group, 11 out of 18, died with signs of congestive heart failure. In some cases this was due to myocarditis and in others to unrelieved mitral stenosis due to extreme fibrosis or calcification or both which prevented an adequate valvulotomy from being carried out. In two the extensive degree of valvular calcification was thought to be the most important factor and in one of these a clinical diagnosis of calcific embolus to the brain was made. Although a postmortem was done, permission to examine the head was not obtained ; so this factor could not be verified.

Four patients were operated upon and found to have pure mitral incompetence instead of stenosis. One of these succumbed in the postoperative period. In one other case severe supraventricular tachycardia ensured during the thoracotomy and before the pericardium had been opened. The operation was terminated, but all attempts to control the rhythm postoperatively were futile and the patient expired on the third postoperative day.

Two patients developed ventricular fibrillation. In one this occurred as the patient was being placed on the table. Immediate thoractomy was done and electric defibrillation carried out successfully. The operation was continued, a good valvulotomy obtained, and the patient's immediate postoperative condition was excellent, he being awake and talking on leaving the operating room. Sixteen hours later sudden hypotension developed and he expired. It is thought that another attack of ventricular fibrillation may have been responsible. The other case developed ventricular fibrillation after the chest was opened but could not be corrected by repeated attempts.

One patient died due primarily to excessive blood loss while removing a very large adherent thrombus in the left auricle.

The most unusual cause of death was due to a sharp spicule of bone from the cut end of a resected rib piercing the right ventricle. This was not noted at the time the valvulotomy was being done but on removing the finger from the auricular appendage blood welled up which was thought must be from a tear in the auricular wall. Much blood was lost before it was discovered that the bleeding was from a hole in the right ventricle and it was not possible to resuscitate the patient.

The long-term results in this series have not been calculated as the majority of patients have been operated upon during the past 2½ years. We know of two late deaths from congestive heart failure both in individuals on whom we were unable to do an adequate valvulotomy.

VALVULOPLASTY FOR REGURGITATION

There have been several techniques recommended for the correction of mitral regurgitation, but most workers are agreed that we are a long way from a satisfactory surgical correction of this condition. At present we do not consider any of operative procedures so far developed as worthy of wide acceptance. It is quite possible that open heart surgery which is developing so rapidly will be the answer to this problem (Scott *et al*, 1958). We have done no operation for mitral incompetence.

SUMMARY

Rheumatic heart disease is common in India, contrary to earlier teaching. A historical review of development of surgery of rheumatic heart disease is outlined. An attempt has been made to present in simple form the surgical aspects of rheumatic heart disease. Various factors influencing the selection of patients for mitral commissurotomy are briefly discussed.

We have inserted Hufnagel valves in four cases successfully for the treatment of aortic regurgitation with considerable improvement to all patients. To date 123 cases of mitral stenosis have been operated upon at the Christian Medical College

Hospital, Vellore, with a gross operative mortality of 14·6 per cent.

References

Bailey, C. P.—Surgery of the Heart, 1955, Lea and Febiger, Philadelphia.

Bailey, C. P., Glover, R. P. and O'Neill, T. J. E.—*J. Thoracic Surg.*, **19** : 16, 1950.

Baker, C., Brock, R. C. and Campbell, M.—*Brit. M. J.*, **1** : 1283, 1950.

Bigelow, W. G. and Greenwood, W. F.—*S. Clin. North America*, **34** : 875, 1954.

Björk, V. O., Malmström, G. and Uggla, L. G.—*Ann. Surg.*, **138** : 719, 1953.

Cutler, E. C. and Beck, C. S.—*Arch. Surg.*, **9** : 689, 1924.

Diveley, W. L., Daniel, R. A. Jr., Scott, H. W. and Foster, J. H.—*Ann. Surg.*, **147** : 614, 1958.

Ducket, J. W.—Discussion of Diveley, Daniel, Scott and Foster (1958).

Fisher, E. L.—*J. Thoracic Surg.*, **30** : 379, 1955.

Glover, R. P. and O'Neill, T. J. E.—*J.A.M.A.*, **144** : 1049, 1950.

Harken, D. E., Ellis, L. B., Ware, P. F. and Norman, L. T.—*New England J. Med.*, **239** : 801, 1948.

Hufnagel, C. A., Harvey, W. P., Rabil, P. J. and McDermot, T. P.—*Surgery*, **35** : 673, 1954.

Scott, H. W., Daniel, R. A., Jr., Adams, J. E. and Schull, L. G.—*Ann. Surg.*, **147** : 625, 1958.

Tuffier, T. (1914)—Reported by Cutler and Beck (1924).

THE 1958 EPIDEMIC OF VIRUS ENCEPHALITIS

K. S. MATHUR, M.D., M.R.C.P.

AND

R. PRASAD, M.D.

From the Department of Medicine
S. N. Medical College, Agra

Introduction

In July 1958, Agra was in the grip of an epidemic of virus encephalitis. Virus encephalitis is not a new disease as sporadic cases occur all the year round (Table 1). It gained in importance because of its epidemic occurrence and its known fatality among children.

Material

Between July and September 1958, one hundred and sixty one cases of virus encephalitis were admitted to Sarojini Naidu Hospital, Agra. The present paper is based on the clinical study of these cases.

Table 1—Showing Monthly Distribution of Virus Encephalitis Cases Admitted to S. N. Hospital, Agra

Month	No. of cases for the year		
	1956	1957	1958
January	4	2	5
February	4	5	4
March	9	3	1
April	4	5	5
May	4	8	6
June	5	5	9
July	8	7	65
August	8	4	42
September	9	4	54
October	7	3	—
November	6	3	—
December	5	8	—
	73	57	—

Epidemiological Review

Epidemics of virus diseases must have been existent from antiquity but the first epidemic of encephalitis is known to have occurred in Japan in 1871. The actual study of this disease did not begin until the epidemic reappeared in 1912 and subsequently in 1919, 1924, 1929, 1935 and 1945 (Rivers, 1948). It was actually recognised as virus encephalitis in the summer of 1924 when 7,000 cases were reported with a mortality of 60 per cent. The virus was isolated in 1935 (Kashahara *et al*, 1936 and Taniguchi *et al*, 1936).

Similar epidemics have been reported from Australia in 1917-18, 1922, 1925 and 1926 (Cleland and Campbell, 1919) under the name of Australian X disease, St. Louis (Webster and Fite, 1933) in 1933, Russian Far East (Silber and Soloviev, 1946) in 1946 and in many parts of the world.

In India the first outbreak of encephalitis was reported by Chatterji *et al* in 1945 from Calcutta although sporadic cases had been observed at Agra (Gour, 1956), Bombay (Desouza, 1955) and other places.

During recent times the biggest epidemics were recorded in 1954 at Jamshedpur (Khan, 1954 ; Seal and Ghose Chowdhury, 1956) followed immediately by outbreaks in Bilaspur and Nagpur in Madhya Pradesh, Mysore (Pierce, 1954) ; Monghyr and Patna in Bihar ; Hardoi, Bareilley and Sitapur in Uttar Pradesh ; Paniput, Sonepat, Shahabad, Ambala, Pondro, Kaithal and Karnal in Punjab (Mathur, 1953) and also from Delhi, i.e., covering a fairly wide area of northern India (Editorial, *J. Indian M. A.*, 1956). The outbreak of virus encephalitis also occurred in Mysore State

in 1956 (Work *et al* 1957). The Kyasanur forest disease virus was isolated from the organs of the dead monkeys and blood and viscera of human cases ending fatally and reported to be related to Russian spring summer encephalitis virus.

From times immemorial, a number of these diseases of similar epidemiology have been grouped together as the arthrophod-borne or arbor viruses, e.g., Japanese B, Murray Valley and Russian spring summer encephalitis viruses etc. But lately another group of enteric viruses, e.g., polio virus, coxsackie and echo viruses have been incriminated for the causation of encephalitis in human beings.

Different outbreaks of encephalitis may be due to different types of viruses. This is proved by the dissimilarities in different epidemics in the severity, recovery rate and extent and duration of sequelae, e.g., sequelae in Delhi epidemic of 1954 were 33 per cent amongst recovered cases and in nearly 60 per cent of them the sequelae remained permanent. While the incidence of sequelae and residual effects were markedly less in Jamshedpur outbreak in the same year. It, therefore, raises the point whether it is possible that the two outbreaks may have been caused by two different types of viruses.

Epidemiological Findings

The epidemic extended to a period of about 3 months from July 1 to October 4, 1958, and the peak was for 2 weeks between July 7 to July 21, the largest number of deaths being recorded during the period between Sept. 22 to Sept. 28 (Fig. 1).

Locality incidence—The cases did not come from any particular localities of the town. The earliest case was traced to have occurred in Mohalla Bagh Muzaffar Khan, the second case came from the Civil Lines area. The cases were subsequently drawn from different localities irrespective of the neat, clean and thinly populated civil line areas or dirty and crowded areas of the town.

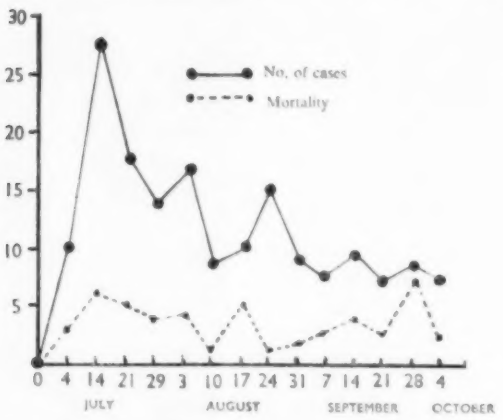

Fig. 1—Showing Weekly Admissions and Mortality Incidence from 1-7-58 to 4-10-58.

Familial incidence—The persons belonging to high socio-economic strata were as much exposed to the disease as those coming from poorer classes. Brothers were affected simultaneously in four families, including one set of twins. It was also observed that more than two members suffered in the same family. Six boys from the same boarding house of a school were admitted in rapid succession within two weeks. There was no report of case to case infection in the wards of the hospital.

Age and sex distribution—The majority of cases occurred below 8 years accounting for 89·1 per cent of 161 admissions (Table 2). The maximum incidence was among the infants. Only 8·7 per cent were above 10 years. The youngest patient was an infant one month old and the oldest was a male 35 years of age. Out of 161 cases 112 were males and 49 were females giving the male : female ratio as 7 : 3.

Incidence of associated viral diseases—The history of other virus diseases within three months of the onset of encephalitis among patients and their family members was enquired only in 123 out of 161 cases. History of measles was available in 16·3 per cent of patients and family members of 4·9 per cent had suffered from measles in the recent past. There was no history suggestive of encephalomyelitis during the attack of measles in these 16·3 per cent of cases and positive family history of measles in only 4·9 per cent of cases is statistically insignificant. It is felt that there is no relationship between the virus of measles and encephalitis. The positive history of smallpox, mumps, chicken-

Table 2—Showing Age and Sex Distribution

Age groups in years	Male No. of cases	Female No. of cases	Total cases
Below 1 ...	35	8	43
1—2 ...	15	10	25
3—4 ...	27	14	41
5—6 ...	18	7	25
7—8 ...	6	4	10
9—10 ...	3	0	3
11—15 ...	5	2	7
Over 16 ...	3	4	7
Total ...	112	49	Grand Total 161

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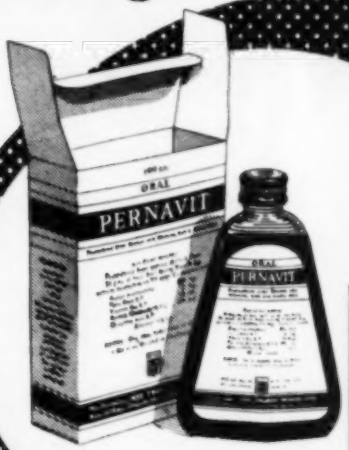

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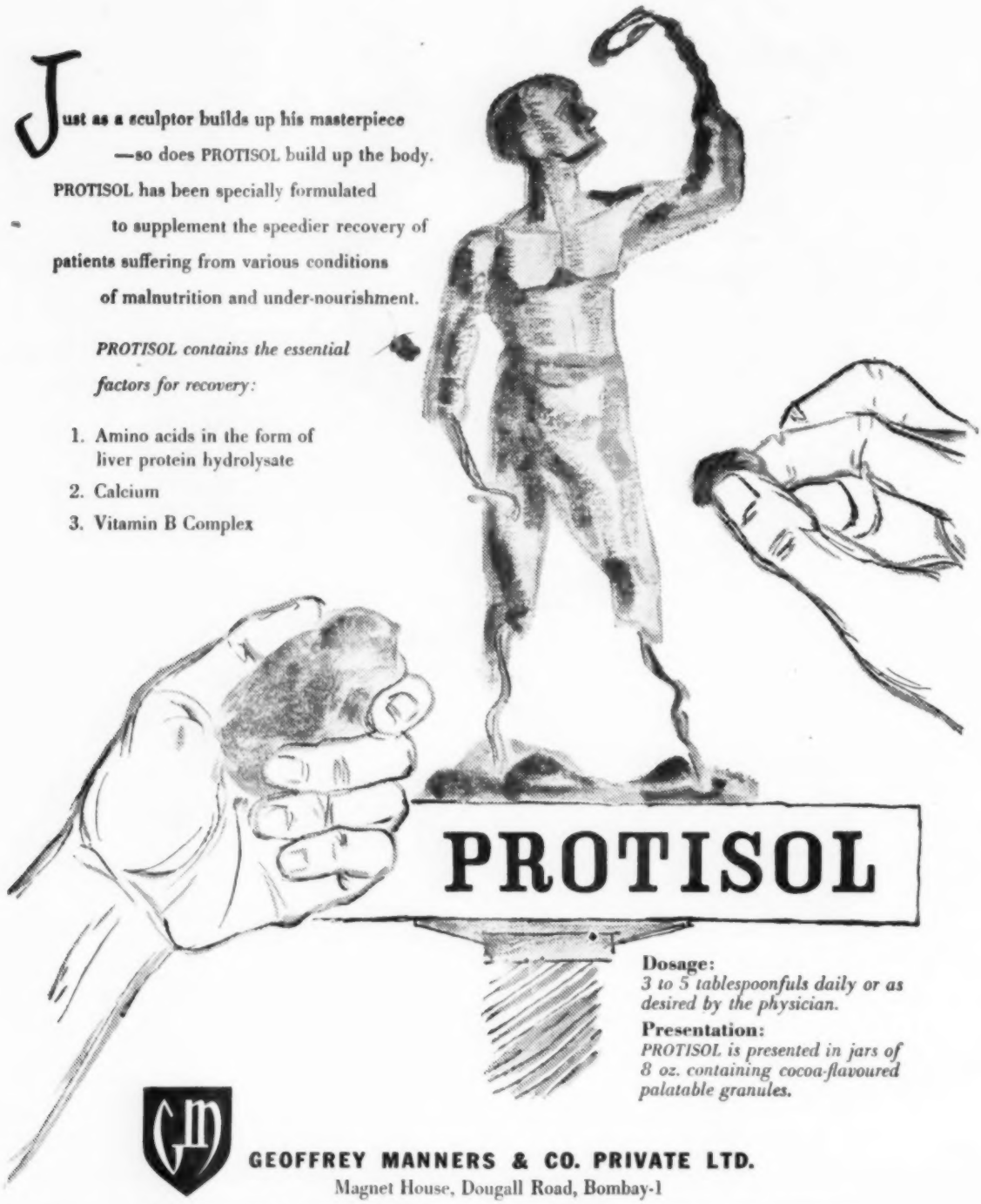

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pox and infective hepatitis in a few of the cases was also not significant.

TABLE 3—SHOWING INCIDENCE OF VIRAL DISEASES AMONGST PATIENTS AND FAMILY MEMBERS DURING PREVIOUS 3 MONTHS (123 CASES)

Other viral diseases	Patients (per cent)	Family members (per cent)
Measles ...	16·3	4·9
Smallpox ...	1·6	2·4
Mumps ...	1·6	0
Chicken-pox ...	0·8	0
Infective hepatitis ...	0·8	0

CLINICAL FEATURES

A detailed history of onset and progression of the disease was recorded in each of the 161 patients of virus encephalitis admitted to the hospital. Onset of the disease was sudden in most of the cases. The child was usually in a good state of health before the actual onset of this illness. After waking up from sleep or coming back from school the child, in a typical case, showed signs of uneasiness, vomited or passed loose offensive stools, the temperature shot up all of a sudden to 102-105°F or even higher (maximum temperature recorded was 110°F), the patient started having convulsions, twitchings, often talked incoherently or became delirious, all coming in succession. Ultimately the child lapsed into a semiconscious or unconscious state.

The presenting symptoms of the present epidemic are shown in Table 4.

TABLE 4—SHOWING THE INCIDENCE OF PRESENTING SYMPTOMS

No.	Symptoms	Incidence per cent	No.	Symptoms	Incidence per cent
1.	Fever		9.	Rolling upwards of eyes ...	5·6
	(a) Very high	23·6	10.	Breathlessness	5
	(b) High ...	27·3	11.	Headache ...	5
	(c) Moderate	47·2	12.	Flushing of face ...	4·3
2.	Convulsions	62·7	13.	Body pains ...	3·7
3.	Vomiting ...	45·3	14.	Weakness of limbs ...	3·1
4.	Diarrhoea ...	30·4	15.	Retention of urine ...	2·9
5.	Consciousness		16.	Difficulty in deglutition ...	2·5
	(a) Coma ...	11·2	17.	Blindness ...	1·9
	(b) Semiconsciousness	32·9	18.	Difficulty in speaking ...	1·2
	(c) Drowsiness	14·9	19.	Hiccough ...	0·6
	(d) Lethargy	2·5			
	(e) Normal ...	38·5			
6.	Involuntary movements ...	6·2			
7.	Restlessness	6·2			
8.	Sialorrhea ...	6·2			

The fever was the commonest symptom although two cases were admitted with a normal temperature. The temperature at the time of admission was very high (above 105°F in 23·6 per cent), high (between 102°F-105°F in 27·3 per cent) or moderate (up to 102°F in 47·2 per cent). The temperature was most commonly continuous or remittent with few cases showing intermittent temperature. The temperature usually returned to normal by lysis. A characteristic finding was a secondary rise of temperature (Fig. 2) in 15·5 per cent (25 cases) of cases after a complete remission lasting 4 to 10 days. Only 1·8 per cent (3 cases) showed a tertiary rise of temperature. The second or third bout of fever invariably settled down in 2 to 4 days. This type of rise of the temperature was only noted in two of previous epidemics at Jamshedpur (Seal and Ghose Chowdhury, 1956) and in South India in one out of twelve cases (Pierce, 1954).

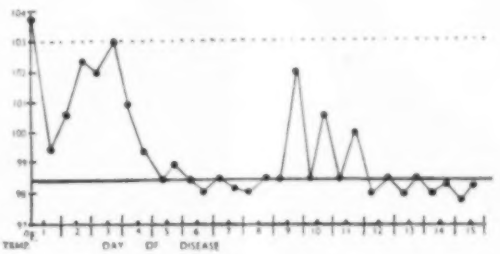

FIG. 2—TEMPERATURE CHART SHOWING SECONDARY RISE OF FEVER.

Blindness in two cases and marked diminution in vision in one other case were peculiar features met with in the present epidemic. All these three cases had a typical clinical picture of encephalitis including sudden onset of high fever, convulsions and signs of meningeal irritation.

Irregular movements, different from convulsions, in the form of myoclonic movements in one case, rhythmic parkinsonian type of tremors in two cases with complete recovery were other notable features of this epidemic.

At the onset of the illness weakness of the limbs was found to be present in the form of paraplegia of spastic nature in two cases (1·2 per cent) and of flaccid type in one case (0·6 per cent) ; two patients (1·2 per cent) were admitted as cases of hemiparesis. With the improvement of general condition no residual effect was observed in these cases.

The incidence of the physical signs was as shown in Table 5.

TABLE 5—SHOWING THE INCIDENCE OF PHYSICAL SIGNS (161 CASES)

No.	Signs	Incidence per cent	No.	Signs	Incidence per cent
1.	Neck rigidity	52·2	5.	Pulmonary involvement	22·4
2.	Kernig's sign	51	6.	Congested eyes	3·7
3.	Exaggerated reflexes	6·2	7.	Constricted pupils	1·9
4.	Plantar response		8.	Ptosis	1·2
	(a) Extensor	42·2	9.	Squint	1·2
	(b) Flexor	30·4	10.	Optic neuritis*	5
	(c) Indefinite	5	11.	Pallor of discs*	3·3

* Out of 60 cases.

Signs of meningeal irritation in the form of neck rigidity and Kernig's sign were present in more than half the cases. Extensor plantar response was noted in 42·2 per cent. Pulmonary involvement was common, three cases having died of acute pulmonary oedema. The ophthalmoscopic examination was possible only in 60 cases, 5 per cent of whom had optic neuritis and 3·3 per cent pallor of the discs.

The 161 cases studied during the present epidemic could be classified into 3 clinical types depending upon the severity of presenting symptoms and positive physical signs.

1. Fulminant type (34·8 per cent)—Usually the onset was sudden with very high temperature (above 105°F), very often the child vomited or passed loose stools, followed by twitchings and convulsions and ultimately lapsed into unconsciousness with marked signs of meningeal irritation.

2. Moderate type (33·5 per cent)—The initial symptoms were very often less dramatic with temperature ranging between 103°-105°F and convulsions. Signs of meningeal irritation with or without slight mental incoherence ultimately leading to drowsy or semiconscious state were present.

3. Mild type (31·6 per cent)—The onset was sudden with moderate rise of temperature (below 103°F), with or without signs of meningeal irritation and occasional history of convulsion at the onset. The child was either restless and lethargic or normal.

Laboratory findings—Analysis of blood and C.S.F. findings is shown in Table 6.

TABLE 6—SHOWING ANALYSIS OF BLOOD AND C.S.F. FINDINGS

No.	Investigation	Incidence per cent
1.	White cell count (126 cases)	
	(a) Total count (per c.mm.)	
	(i) Marked leucocytosis (over 15,000)	15·9
	(ii) Moderate leucocytosis (10-15,000)	52·4
	(iii) Normal (7-10,000)	31·7
	(b) Differential count	
	(i) Polymorphonuclear leucocytosis	70·6
	(ii) Lymphocytosis	27·8
2.	Blood sugar (in mg. per cent) (20 cases)	
	(a) Low (below 80)	15
	(b) Normal (80-120)	70
	(c) High (over 120)	15
3.	Cerebrospinal fluid (121 cases)	
	(a) Raised tension	76
	(b) Cells per c.mm.	
	(1—5)	8·3
	(5—50)	70·2
	(50—100)	4·1
	(100—Above)	3·3
	(c) Sugar (in mg. per cent)	
	(i) High (over 80)	4·1
	(ii) Normal (40-80)	61·2
	(iii) Low (below 40)	19

Polymorphonuclear leucocytosis was evident in more than two-thirds of the cases. Hypoglycaemia reported in the Jamshedpur epidemic was not a characteristic feature of the present epidemic as blood sugar was low only in 15 per cent cases.

The cerebrospinal fluid was under increased tension in 76 per cent cases. Pleocytosis to the extent of 5-50 cells was the most common finding although cell counts up to 100 or above were also reported. C.S.F. sugar was high in 4·1 per cent and normal in 61·2 per cent cases. The low sugar count reported in 19 per cent cases may be accounted for the delay of 48-72 hours after the collection of C.S.F. when sugar is known to undergo fermentation.

Chloride and protein contents of the cerebrospinal fluid were within normal range and culture was sterile in all cases.

TREATMENT

All the cases of acute virus encephalitis were admitted to a special ward in Unit A under the same physician and his assistants. An efficient team of nursing staff was put on duty throughout the period of study. This ensured identical medical and nursing facilities to all the cases.

TABLE 7—SHOWING ANALYSIS OF DIFFERENT REGIMES OF TREATMENT

Groups	Drug used	Total No. of cases	No. of cases died within 24 hours	No. of cases survived	Results of cases treated 24 hours after hospitalisation											
					Worthwhile						Not worthwhile					
					Striking		Good		Satisfactory		Total	No response		Died		Total
					No.	per cent	No.	per cent	No.	per cent	per cent	No.	per cent	No.	per cent	per cent
1.	Tetracycline ...	44	13	31	6	19·3	15	48·5	7	22·6	90·4	2	6·5	1	3·2	9·7
2.	Penicillin ...	27	8	19	4	21	6	31·6	6	31·6	84·2	0	0	3	15·8	15·8
3.	Chloromycetin ...	8	0	8	1	12·5	4	50	1	12·5	75	0	0	2	25	25
4.	ACTH ...	12	0	12	1	8·3	6	50	5	41·7	100	0	0	0	0	0
5.	Tetracycline+ACTH ...	36	10	26	1	3·8	6	23·1	15	57·7	84·6	1	3·8	3	11·5	15·3
6.	Penicillin+ACTH ...	15	1	14	4	28·6	1	7·1	7	50	85·7	1	7·1	1	7·1	14·2
7.	Bland solution ...	17	3	14	1	7·1	8	57·1	5	35·7	100	0	0	0	0	0
	Total ...	159	35	124	18	14·5	46	37	46	37	88·7	4	3·2	10	8	11·3

Symptomatic treatment—Symptomatic treatment was given to all cases. Hyperpyrexia was treated by immediate ice-cold sponging and ice cap, and convulsions by rectal or intramuscular paraldehyde. Salicylate and diaphoretic mixtures were given as a routine to all the cases.

Drugs used—In the absence of any known specific therapy for acute virus encephalitis, it was decided to make a controlled study of different regimes of treatment. Patients were given one of the 7 regimes of therapy—1. tetracycline, 2. penicillin, 3. chloromycetin, 4. ACTH, 5. tetracycline + ACTH, 6. penicillin + ACTH and 7. bland solution containing normal saline—for intramuscular injection (Table 7).

The different regimes were given to different sets of patients depending on their admission days, but were otherwise unselected. The content of the bland solution was not known to anyone, including the nursing staff, except the physician.

Only those cases who survived 24 hours after admission to the hospital were analysed in each group for the evaluation of the efficiency of the drug therapy as the first 24 hours were considered inconclusive for any therapy to be effective.

RESULTS

The results of treatment (Table 7) of the cases treated 24 hours after hospitalisation were evaluated as 'worthwhile' or 'not worthwhile'. In the 'worthwhile' group the response of therapy was considered 'striking' if the temperature settled down to normal and signs of meningeal irritation disappeared and consciousness returned within 3 days ; 'good' response if patient improved within 7 days and 'satisfactory' response if patient became all right within 7-30 days' time. In the 'not worthwhile' group cases either showed 'no response' even after a month's treatment or died.

Bland solution regime and ACTH regime gave the best results, the treatment proving 'worthwhile' in cent per cent cases. The treatment was 'worthwhile' in 90·4 per cent in tetracycline regime and 75 per cent in chloromycetine regime while it stood at 84·2 per cent in penicillin alone. The combination of tetracycline and penicillin with ACTH gave 84·6 and 85·7 per cent 'worthwhile' results respectively.

On the basis of the above observations the bland solution is equally effective if not superior to the antibiotics and ACTH. It is therefore concluded that no single drug therapy is superior to the other in the treatment of acute virus encephalitis.

Mortality—There have been 45 deaths out of 161 cases studied during the epidemic of virus encephalitis (Table 8) giving a mortality rate of 27·9 per cent. These included 34 males and 11 females.

TABLE 8—SHOWING INCIDENCE OF MORTALITY

Age groups in years	Total No. of cases	Mortality incidence			
		Male No. cases	Female No. cases	Total No. cases	Per cent
Below 1 ...	43	7	3	10	23·2
1—2 ...	25	4	2	6	24
3—4 ...	41	10	0	10	24·4
5—6 ...	25	9	3	12	48
7—8 ...	10	2	0	2	20
9—10 ...	3	2	0	2	66·6
11—15 ...	7	0	1	1	14·3
16 & above	7	0	2	2	28·5
Total	161	34	11	45	27·9

38 out of 45 deaths (84·4 per cent) occurred amongst children below 6 years of age.

Relapse—Amongst the 112 patients who were discharged as cured and who had shown 'worthwhile' response to therapy eight were readmitted with a relapse thus giving a relapse rate of 7·1 per cent.

Follow-up—The discharged cases have now been followed up for 1-3 months. They are called for a check-up every fortnight. No serious residual effects have so far been encountered in about 70 per cent of the discharged cases who have turned up for examination. Exaggerated jerks with extensor plantar persisted in 3 cases for about 2 months but they are neurologically normal now.

SUMMARY

An epidemic of acute virus encephalitis appeared at Agra in the month of July, 1958, and persisted for about three months.

Diagnosis of acute encephalitis was based on the sudden onset with rapid evolution of neurological symptoms in an otherwise healthy child, other clinical symptoms, signs and negative laboratory findings.

161 cases admitted between July and September, 1958, have been studied.

The majority of the affected has been in the age groups below 8 years (89·1 per cent). Male : female ratio has been found to be 7 : 3.

No relationship has been observed between the incidence of the epidemic and the prevailing sanitary conditions and cases were recorded both among the well-to-do and the poorer classes.

Presenting symptoms and physical signs have been described, investigations of blood and C.S.F. have been reported.

The cases have been treated with seven different regimes and their results analysed. It is felt that none of the treatment is superior to the other.

The mortality rate has been 27·9 per cent. The relapse rate was found to be 7·1 per cent. No serious residual effects have been noted on successive follow-up examinations.

ACKNOWLEDGMENTS

We are thankful to our Resident Physician Dr. Ziaul Islam, and House Physician Dr. A. K. Gupta, for their help in carrying out these studies. Our thanks are also due to the nursing staff without whose co-operation we could not have been able to make these observations in a systematic and scientific way.

REFERENCES

CHATTERJI, J. R., GUPTA, N. AND DE, M. N.—*Indian M. Gaz.*, **80** : 285, 1945.

CLELAND, J. E. AND CAMPBELL, A. W.—*J. Hyg.*, **18** : 272, 1919.

DESOUZA, T. M.—*Indian J. M. Sc.*, **9** : 381, 1955.

Editorial—*J. Indian M. A.*, **26** : 391, 1956.

GOUR, K. N.—*Ibid.* **26** : 384, 1956.

KASHAHARA, S., UEDA, M., OKATAMOTO, Y., YOSIDA, S., HEMANO, R. AND YAMADA, R.—*Kitasato Arch. Exper. Med.*, **13** : 48, 1936.

KHAN, NAJIB—*Indian J. M. Sc.*, **8** : 597, 1954.

MATHUR, T. N.—*J. Indian M. A.*, **24** : 379, 1953.

PIERCE, D. E. M.—*Ibid.* **24** : 232, 1954.

RIVERS, T. M.—Viral and Rickettsial Infections of Man, 1948, Lippincot, Philadelphia.

SEAL, S. C. AND GHOSE CHOWDHURY, R. H.—*J. Indian M. A.*, **26** : 371, 1956.

SILBER, L. A. AND SOLOVIEV, V. D.—*Am. Rev. Soviet Med., Spl. Suppl.*, 1, 1946.

TANIGUCHI, T., HOSOKAWA, N. AND KUGA, S.—*Jap. J. Exper. Med.*, **14** : 185, 1936.

WEBSTER, L. T. AND FITE, G. L.—*Science*, **88** : 305, 1938.

WORK, T. H., TRAPIDO, H., MURTHY, D. M. N., RAO, R. L., BHATT, P. N. AND KULKARANI, K. G.—*Indian J. M. Sc.*, **11** : 619, 1957.

LIPIDS IN HEALTH AND DISEASE

G. CHATTERJEE, M.SC., D.PHIL.

Cell Research Unit, C.S.I.R.
Department of Applied Chemistry,
Calcutta University

The lipids are one of the three major metabolites of the living tissues ; hence, it is extremely likely that its metabolism must undergo some quantitative changes when the system is under any stress. Such a possibility initiated early workers to begin investigation for an assessment of the degree of impairment of its metabolism by simply estimating and in a few cases fractionating the lipids, including the phospholipids, present in plasma or tissues under the conditions.

In general, pathological conditions can be classified into two groups, (a) where there is an accumulation of the lipids and (b) where there is depletion. Accumulation or depletion may occur in any of the tissues depending on the nature of the disease. Moreover, it has been observed that their composition in the serum may be different under different conditions, therefore it is worthwhile to find also the distribution of lipids. Studies on the changes in the concentrations of lipids during various pathological conditions carried out by various workers have been briefly reviewed here.

Certain Uncommon Diseases

Certain uncommon diseases which are more obscure and occur as a result of metabolic disturbances of lipids showing an abnormal accumulation in various tissues and organs have been classified as 'lipidoses' by Thannhauser (1940). These are distinguished from the others by the site chosen for lipid accumulation and the composition of lipids and the condition of lipid components of blood.

In xanthomatoses, lipids get accumulated on the reticular bone tissues, mastoid and sinuses as a yellow deposit, high in cholesterol content and hypercholesterolaemia is observed. Depending on the sites of lipid accumulation, the type of this disease varies and in certain cases no hypercholesterolaemia is observed. Normally, the phosphatides and the total lipids are increased. In the secondary stage of this disease, lipaemia also becomes prominent.

Niemann-Pick disease is characterised by normal quantities of blood lipids but a maximum increase in sphingomyelin content in the brain and the liver with the corresponding lesser amounts of glycerophosphatides. Absence of normal cerebrosides and also highly saturated C_{20} and C_{22} fatty acids containing lipids in the brain only, has been observed. The normal cerebrosides are substituted by a galactoside of unknown composition probably of the neuraminic acid type. Similarly in Tay-Sachs disease, the blood picture is quite normal and the lipid accumulations are prone to occur in the brain as well as in the spleen. Here sphingomyelin is less and large quantities of neuraminic acid is accumulated. Gaucher's disease is also characterised by larger accumulation of cerebrosides, phospholipids and cholesterol in the spleen, liver and lymph nodes. In idiopathic hyperlipaemia, the levels of triglycerides and total lipids are increased. In idiopathic cholesterolaemia, cholesterol and phospholipid is increased. Studies in serum lipoproteins in these disorders reveal elevation of lipoprotein fraction (Sohar *et al*, 1957).

Arteriosclerosis

Early workers have noticed an abnormal accumulation of lipids in the portions of the blood vessels affected in arteriosclerosis. Atherosclerosis is a bit different from arteriosclerosis since under the former conditions the deposited lipids are mainly cholesterol. Cholesterol feeding or stilboesterol injections (Chaikoff *et al*, 1948) can induce hyperlipaemia in birds which eventually produce atherosclerosis. During such conditions in rabbits the phosphatide as well as the cholesterol content of the blood is increased (Chaikoff, *loc. cit.*). Interesting work by Masoro *et al* (1949) has shown that the arterial tissue is capable of synthesising fatty acids from labelled sodium acetate and of incorporating inorganic phosphate into phosphatide *in vitro*. This obviously suggests that blood vessels themselves are responsible for the lipid deposits especially where infiltration from the plasma is impossible. The concentration of total lipids and also phospholipids of blood in essential hypertension remains normal unless associated causes for hyperlipaemia such as nephritis exist (Peters and Man, 1943). Harris *et al* (1949), on the other hand, found that serum lipids including phosphatides are increased in hypertension. Recently Gofman *et al* (1950) ultracentrifugally isolated a fraction from blood which is high in cholesterol content and the cholesterol content being influenced by exogenous cholesterol. Laszlo and Schuler (1954) found that during atherosclerosis increase in cholesterol is associated with only a minor increase in lecithin.

Barr *et al* (1955) have very recently estimated the changes in the lipid content of different Cohn's fraction during experimental atherosclerosis.

In arteriosclerosis, a moderate increase in total lipid value in 50 per cent cases of arteriosclerosis without diabetes, has been noticed, the cholesterol value being increased only 20 per cent. Administration of vitamin A increased serum cholesterol and neutral fat level (Depisch, 1954).

The above observations therefore raise the doubt about the experiments carried out by Kesten and Silbowitz (1942) who proved that the administration of phosphatides was effective in bringing down hypercholesterolaemia and alleviating arteriosclerosis. This point now required proper confirmation.

Diseases of the Central Nervous System

In various psychological disorders the blood lipids do not usually differ and Yasuda (1937) found no change also in brain lipids with various mental conditions. Roeder (1940) reported that the phosphatide content of cerebrospinal fluid is decreased in patients with schizophrenia. In the epileptic conditions a slight increase in blood cholesterol along with a decrease in phosphatides has been reported. In senility there is practically no significant difference between the lipoprotein distribution while the serum lipid partitions are low in the old age groups (Goldbloom, 1955). The therapeutic value of ox-brain lipids for chorea has been reported by Hollander (1941). Recently it has been observed by Russian workers (Makarychev and Sergeeva, 1955) that feeding of small doses (0·2-0·5 g.) of lecithin always increased the activity of the conditioned reflexes of the cerebral cortex. The feeding of large doses (5 g.) caused a decrease of such reflex activity.

Diabetes

In diabetic patients, lipaemia is observed and also in experimental diabetes there is decreased formation of fatty acids from carbohydrates. This is due primarily to the lack of glycolytic intermediates. There is maximum increase of lecithin and a low increase of sphingomyelin content in the blood of diabetics while the cephalin fraction vanishes astonishingly. According to Engelhardt and Derbes (1944) the subcutaneous fat of diabetics had a slightly higher content of phosphatides than the normal.

Carcinoma and Tumours

The early observation that malignant tumours have higher phosphatide and cholesterol contents than benign tumours has been confirmed by Muntoni (1947).

Costello *et al* (1947) have shown that epidermal lipids are decreased with the corresponding increase of tumour phosphatides ; changes in the saturation of fatty acids of the phosphatides have been found by several workers. Jones, Chaikoff and Lawrence (1939) found rapid turnover rates of inorganic phosphates into the phosphatides with tumour cells. Another important observation relating to the therapeutic value of phosphatides has been carried out by Weil-Malherbe and Dickens (1944). They found that cephalin or lecithin has got some protective action when local tumours are produced with subcutaneous injection of benzepyrene. Studies on human plasma lipoprotein during carcinoma of breast (Barclay *et al*, 1955) have shown that the α-lipoprotein of the plasma is reduced to two-thirds of the original figure. High density β-lipoproteins are similar and low density β-lipoproteins are alike in phospholipid and cholesterol content. There is a significant elevation in some of the lipoprotein components.

Tuberculosis

During tuberculosis the state of lipids in blood is subject to much contradication. Izzo and Marenzi (1945) showed that there is a marked reduction in cholesterol and phospholipids, lecithin being reduced to 50 per cent, cephalin still less, while sphingomyelin suffered no change. This has been contradicted and the work needs further clarification.

So far as the therapeutic value of lipids for this disease is concerned, it has been proved by Tompkins (1936) that egg-yolk lecithin has some protective action and in some way it caused more rapid healing of rabbits inoculated with bacillus tuberculosis than that of the control groups. He suggested that the phenomenon might be due to some activating effect exerted by the phosphatides on the enzymes which break down the tubercle bacillus.

Patients with silicosis showed an increased amount of serum fat, extractable even at low alcohol level, the total extractability being also increased.

Hormonal Defects

Hyperthyroidism brought about a maximum decrease in the neutral fat and moderate decrease in phospholipid in serum. This view has been contradicted and it has been reported by Gildea *et al* (1939) that neutral fat was least affected

whereas cholesterol and phospholipids decreased appreciably.

Migeon (1952) observed that the administration of cortisone to intact rats increased serum phosphatides but had no effect on the lipid levels of adrenalectomised rats maintained on DOCA. Adrenalectomised animals without DOCA, did not show a significant alteration in serum phosphatide levels.

Administration of growth hormone produced a decrease in the lipid content of serum (Fasoli *et al*, 1954). In patients with nephrosis and in one patient with hypothyroidism the specific activity of plasma lipid phosphorus increased more slowly than in normal individual (Moser and Emerson, 1955). In acute experimental intestinal occlusion (Nocentini and Monaci, 1954) the adrenal cortex cells of rabbits showed progressive decrease of lipids, phospholipids and cholesterol.

Liver Diseases

In hepatic dysfunctions such as development of calculi, tumours or inflammation which affect biliary obstructions and subsequent destruction of tissue, and also in toxic hepatitis (Thannhauser, 1947) the ratio of free to total cholesterol in the blood increases. It has been observed that the total phosphatide and cholesterol content of blood of patients with obstructive jaundice could be extracted with ether indicating that the protein complexes normally present were in some way dissociated.

Billing *et al* (1955) have proved that there was association between total liver lipids and serum total lipids, fatty acid, phospholipid, total and free cholesterol, in case of liver cirrhosis.

Kidney Diseases

Kidney diseases are normally associated with lipaemia ; when the kidney is prevented entirely from functioning, by means of double nephrectomy in dogs and monkeys, phosphatides, neutral fat, as well as cholesterol are increased.

Steatorrhea, a disease during which the production of enzymes in the pancreas and the gastrointestinal tract is prevented and which is also accompanied by the presence of lipids in the faeces, is accompanied with a reduction in both the cholesterol and phosphatide concentrations.

Anaemia

In erythroblastic anaemia, triglycerides and esterified cholesterol content of the blood cells, increased markedly and the phosphatides in the cells increased slightly whereas in the plasma, lecithin, cephalin and sphingomyelin fractions were decreased. During pernicious anaemia, it has been observed that the phospholipids and free and esterified cholesterol of the spinal fluid are increased. Schwartz *et al* (1955) have noted an alteration of the metabolism of cholesterol and phospholipids in Mediterranean anaemia. They obtained higher value of total lipids and lower value of bound and free cholesterol in the plasma of patients who suffered from this disease.

Other diseases

In pneumonia, the blood lipids and fatty acids are decreased to a marked extent. The early stages of syphilis are accompanied by a slight decrease in serum cholesterol, the phospholipid content having suffered no change. Injection of lecithin hastens the resolution of syphilitic lesions produced experimentally in the rabbit.

Kehar (1937) observed hypercholesterolaemia in the rigor stage of human malaria. Ball *et al* (1949) found that r.b.c. from monkey infected with *P. knowlesii* contained two to four times as much phosphatides as was normally present. In diphtheria, allergy, or active arthritis blood lipid levels do not show any change from those of the normal controls. In progressive paralysis, there is probably loss of phosphatides from the brain.

In otogenic abscesses of the brain the increase of the lipid content of the cerebrospinal fluid is more than twofold, while in meningitis a twofold increase has been noticed (Burian, 1952). In multiple sclerosis, the brain phosphatides are greatly decreased whereas the total phospholipid content of the serum was little below normal (Bernsohn and Namajuska, 1955). The use of lecithin as a therapeutic measure for drug addiction and for patients with multiple sclerosis (Chopra and Chopra, 1940) has also been reported.

In deficiencies of vitamin K or D, no change in the serum phosphatides takes place. B-avitaminoses bring about diminished contents of blood neutral fat and cholesterol and increased amounts of blood phosphatides, cholesterol esters and fatty acids. Scurvy causes increase in lecithin and also free cholesterol.

References

Ball, E. G. and others—*J. Biol. Chem.*, **175** : 547, 1949.

Barclay, M. and others—*Cancer*, **8** : 253, 1955.

Barr, D. P., Russ, E. M., Eder, H. H., Kendall, F. E. and Abel, L. L.—*Circulation Res.*, **3** : 199, 1955.

Bernsohn, J. and Namajuska, I.—*Proc. Soc. Exper. Biol. & Med.*, **88** : 124, 1955.

BILLING, B. H. AND OTHERS—*J. Lab. Clin. Med.*, **45** : 365, 1955.
BURIAN, K.—*Biol. Abst.*, **26** : 2762, 1952.
CHAIKOFF, I. L., LINDSAY, S., LORENZ, F. W. AND ENTENMAN, C.—*J. Exper. Med.*, **88** : 373, 1948.
CHOPRA, R. N. AND CHOPRA, G. S.—*Indian M. Gaz.*, **75** : 388, 1940.
COSTELLO, C. J., CARUTHERS, C., KAMEN, M. D. AND SIMOES, R. L.—*Cancer Res.*, **7** : 642, 1947.
DEPISCH, F.—*Excerpta. Med.*, Sect. V, **7** : 364, 1954.
ENGELHARDT, H. T. AND DERBES, V. J.—*Am. J. M. Sc.*, **207** : 776, 1944.
FASOLI, A., MAGID, E. B., GLASSMAN, M. AND FAO, P. P.—*Proc. Soc. Exper. Biol. & Med.*, **87** : 167, 1954.
GILDEA, E. F., MAN, E. B. AND PETERS, J. P.—*J. Clin. Invest.*, **18** : 739, 1939.
GOFMAN, J. W. AND OTHERS—*Science*, **111** : 166, 1950.
GOLDBLOOM, A. A.—*Am. J. Digest. Dis.*, **22** : 51, 1955.
HARRIS, I., VERNON, C. E., JACOB, N. AND ROBERTS, M. E.—*Lancet*, **2** : 283, 1949.
HOLLANDER, E.—*Chem. Abst.*, **35** : 203, 1941.
IZZO, R. A. AND MARENZI, A. D.—*Chem. Obst.*, **39** : 4383, 1945.
JONES, H. B., CHAIKOFF, I. L. AND LAWRENCE, H. J.—*J. Biol. Chem.*, **128** : 631, 1939.
KEHAR, N. D.—*Records, Malaria Survey*, India, **7** : 117, 1937.
KESTEN, H. D. AND SILBOWITZ, R.—*Proc. Soc. Exper. Biol. & Med.*, **49** : 71, 1942.
LASZLO, J. AND SCHULER, D.—*Acta physiol.* (Hungary), **6** : 463, 1954.
MAKARYCHEV, A. I. AND SERGEEVA, M. A.—*Voprosy. Pitaniya*, **14** : 21, 1955.
MASORO, E. J., CHAIKOFF, I. L. AND DAUBEN, W. G.—*J. Biol. Chem.*, **179** : 1117, 1949.
MIGEON, M.—*Proc. Soc. Exper. Biol. & Med.*, **80** : 571, 1952.
MOSER, M. W. AND EMERSON, K. JR.—*J. Clin. Invest.*, **34** : 1286, 1955.
MUNTONI, E.—*Sperimentale*, **98** : 612, 147; *Chem. Abst.*, **42** : 5549, 1948.
NOCENTINI, P. AND MONACI, M.—*Acta chir., ital.*, **10** : 355, 1954.
PETERS, J. P. AND MAN, E. B.—*J. Clin. Invest.*, **22** : 715, 1943.
ROEDER, F. Z.—*Chem. Abst.*, **34** : 8036, 1940.
SCHWARTZ, E.—*Chem. Abst.*, **49** : 16187, 1955.
SOHAR, E., BOSSAK, E. T. AND ADLERSBERG, D.—*J. Lab. Clin. Med.*, **49** : 716, 1957.
THANNHAUSER, S. J.—Lipidoses : diseases of the cellular lipid metabolism, 1940, Oxford, New York.
Idem—*New England J. Med.*, **237** : 515, 1947.
TOMPKINS, E. H.—*Am. Rev. Tuberclo.*, **33** : 625, 1936; *Chem. Abst.*, **30** : 7684, 1936.
WEIL-MALHERBE, H. AND DICKENS, F.—*Cancer Res.*, **4** : 425, 1944.
YASUDA, M.—*J. Biochem.* (Japan), **26** : 203, 1937.

ETHICAL RELATIONSHIP AMONGST DOCTORS*

B. L. AGARWAL, M.B.B.S., M.R.C.P.

Reader in Medicine, Department of Medicine
G. S. V. M. Medical College, Kanpur

> Life is too short to waste,
> In critic peep or cynic bark,
> Quarrel or reprimand ;
> It will soon be dark ;
> Up ! Mind thine own aim, and
> God speed the mark !
>
> —*Emerson*

Amidst the many problems that beset the profession, is the one of ethical relationship amongst the members, which is far from satisfactory. Existence of mutual distrust and even hostility in some cases is acknowledged privately by a good number of doctors though it may be denied in public and a semblance of unity presented. The public in general and the patients in particular notice it and at times exploit it in their own interests. We cannot afford to ignore these cracks and fissures in our solidarity at a time when the prestige of the profession is at stake.

Ethics after all is the "True art of conduct for a man living a practical life among his fellows". Bertrand Russell (1927) has rightly pointed out that ethics has not proved amenable to exact reasoning. A moral code should adapt itself to changing conditions. There is no more solid basis for medical ethics than there is for general ethics. No set rules and regulations or patterns of behaviour can be laid down to facilitate a correct relationship amongst doctors. It is to be based on the accumulated practical wisdom of the members, on the traditions and the desire to work in an environment where the maximum aid may be rendered to the patient.

In my opinion, the doctors who have the responsibility to practise curative medicine can be divided into three broad groups namely :

(1) Family doctors or the so-called private practioners or general practitioners,

(2) Service doctors with charge of hospital beds, and

(3) Consultants and specialists most of whom are attached to teaching institutions.

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* Based on a lecture delivered at the XXIII U. P. State Medical Conference, Allahabad, October 1958.

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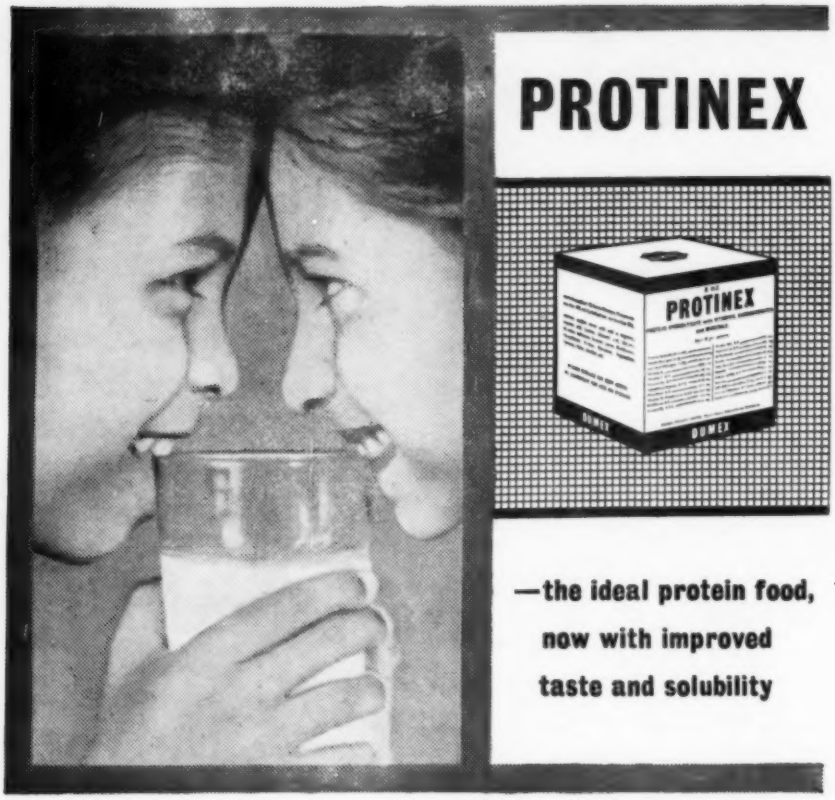

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I propose to confine my remarks to a discussion of the relationship of doctors of one group to the other. Instances of one group accusing the other of adopting questionable methods, of slackening correct standards of practice or even of indulging in actual malpractices are too well known. Charges and countercharges are made which can neither be proved nor denied based at times on a flimsy version of a patient's narration. Sir William Osler (1948) was fully conscious of the effect of wagging tongue of the patients when he wrote—"It is the confounded tales of patients that so often set us by the ears, but if a man makes it a rule never under any circumstances to believe a story told by a patient to the detriment of a fellow practitioner, even if he knows it to be true! though the measure he metes may not be measured to him again, he will have the satisfaction of knowing that he has closed the ears of his soul to ninety-nine lies, and to have missed the hundredth truth will not hurt him."

A poignant illustration of this clash of interests among doctors was witnessed by some of us in one of the District branches of I.M.A. when a resolution on the advisability of abolition of private practice of the consultants attached to a teaching institution was being drafted. Is it really necessary to have this conflict? These groups after, all must not be antagonistic ; they should be complementary to each other. My submission is that if we realise each others' difficulties, and keep in view the limitations and handicaps under which the various doctors have to work, some of these differences can be resolved. This is exactly what I will attempt to do. My qualification to do so is based on the privilege of having belonged to each group at one time or the other.

The first group is of the family doctors, which is the single largest group. They form the foundation and matrix of medical aid to the public and cater for a large majority of it in most of their illnesses. The term private practitioner or general practitioner should now be abandoned in favour of 'family doctor'—a term which denotes a doctor-patient relationship which is not mercenary but places the doctor in the position of a guide, friend and adviser to the sick.

Unlike the specialists or service doctors who have their colleagues to help them and the resources of a hospital behind them, the family doctor has nothing to aid him except his clinical acumen. The assistance of pathological and radiological investigations is beyond the means of a large number of his patients and is not available to him free through the State-run hospitals. He comes across a wide variety of illnesses, a few severe but most of them trivial ; he must, however, never fail to pick out the odd case who is too serious to be treated at home. He cannot afford the luxury of referring his patients to specialists for their expert opinion, as his counterpart does in U.K. under the auspices of the National Health Service. Added to all this is the unfortunate fact that the family doctor in our country has to work in a highly competitive environment. Therefore, he has got to "show results" to survive. It is this anxiety which sometimes compels him to adopt measures which he may not himself approve.

Let us be candid and see what are the charges usually made against him by his colleagues. He is generally accused of sending a patient to the hospital when it is too late and the disease is fairly advanced. Or, for not getting another opinion earlier during the course of a disease, i.e., he persists in treating a disorder even if he is not equipped or qualified to do so. This of course, is applicable only to those places where such facilities exist. Well, the answer to this is simple in a good number of cases: the family physician has been disappointed too often in the past by the available hospital and specialist facilities in his area. He had met with indifference or delay in procuring the help, so he may be reluctant to part with his patient.

Just as often, he is condemned of using drugs, particularly, antibiotics too early and too often in treating a disease. A very common example is that of chloramphenicol administration on the third or fourth day of any pyrexia—though the case may turn out to be a tuberculous meningitis or pleural effusion. This can be easily understood, if we realise his anxiety to "show results" and also of the denial of laboratory diagnostic facilities to him due to inability of his patients to pay for them. The working conditions of a family doctor in our country are the same today as they were at the time when Bernard Shaw (1906) wrote his *Doctor's Dilemma*—"The real woes of the doctor are the shabby coat, the wolf at the door, the tyranny of ignorant patients, the work-day of twenty-four hours and the uselessness of honestly prescribing what most of the patients really need, that is, not medicine, but money."

The typical representative of the second group of service doctors is a P.M.S. officer, working in a district hospital. Let us for a moment ponder over the conditions under which he is working. I assure you, it will be a revelation. His service is a transferable one. He is thus precluded from making any durable contacts with the public or patients and establishing himself. By its very nature then, there cannot be any continuity in

the treatment of patients in the district hospital. Though he cannot account for what has been done before him, yet he invariably inherits the bad name, if any, given to the hospital or to his predecessor. The service doctor is over-burdened with medico-legal, administrative and a host of other non-essential duties. They are rightly taken over in any civilised state by non-medical personnel, thus freeing the doctor to devote all his time to professional work, but this is not so in most of our states. In addition to all this, he is also burdened with the duties of an authorised medical attendant to all the Government servants and their families in the district, which may run into thousands. I cannot do better than quote Dr. T. Banerji of Kanpur who in describing the conditions of a service doctor said: "He has the duty to work during so-called hospital hours which are six, then five miles in and five miles out round the dispensary after hospital hours, to the courts after hospital hours, to the Government servants before or after hospital hours, to ward calls at all the hours, to the emergency at midnight, midday, dawn and dusk." As pointed out by Dr. Banerji himself, "he may have learnt methods of his own to neutralise the overwhelming injustice of overwork but that is not the answer, if efficiency is wanted."

Three main charges levelled against him are: He is accused of refusing to admit even seriously ill patients. It is even implied that he admits only those who have paid his fees. In answer to this, I will request you to go and see the glaring disparity between the available beds and the number of patients seeking admission. Even with the very best of intentions, he cannot take them as indoor cases. There are just not enough beds. The necessary corollary to this is that patients once admitted to hospital cannot be kept there for an indefinite period till they are cured. We have got to have a quick turnover if the beds are not to be blocked.

The second charge of lack of promptness in attending to a case, is frivolous. He cannot be running the outdoor, operating in the theatre, attending a seriously ill Government servant at his home and giving evidence in the court all at the same time. I am presuming that a service doctor has no social obligations or duties towards his family. Lastly, I hope he is not accused of making patients buy medicines from the market by responsible people as most of us are aware of the extreme shortage of drugs in hospitals. Today a service doctor is the most maligned, least understood and a greatly overworked colleague of yours. He is gradually being demoralised and frustrated by this carping criticism and has started showing signs of avoiding responsibility and initiative to save his skin. It is up to us to rescue him from this predicament.

The third group consists of specialists and consultants most of whom are attached to the three teaching institutions of the State. Recently, the healthy trend of recruiting a gradually increasing number of these officers in the Provincial Medical Service to man the specialist services in big district hospitals, is noticeable. Now, who is a specialist? What are his responsibilities and privileges? (The two terms specialist and consultant are synonymous for all practical purposes in our country). It is a restrictive term and is applied to that small privileged minority of doctors who are better equipped and better qualified to treat patients in their own speciality. They are certainly not superior to other categories of doctors. After all, a consultant physician is much less capable of managing, say, a E.N.T. or general surgical case than his colleague in the P.M.S. or in general practice. If this attitude of superiority is displayed by some of them, the earlier it is forsaken the better it would be in their own interests. And this is the advice that Osler (*loc. cit.*) gave to specialists of his time, "Shun as most pernicious that frame of mind, too often, I fear, seen in physicians, which assumes an air of superiority and limits as worthy of your communion only those with satisfactory collegiate or sartorial credentials." It was perhaps this which was responsible for the family doctors in U.K. to organise and lay the foundation of a College of General Practitioners, membership of which is to confer upon them a dignity no less than that of their consultant colleagues heavily fettered with degrees. In some countries like France and Switzerland, specialists are required to devote themselves exclusively to their own speciality. They do not practise general medicine. The same is now true in our State also, as all the advertisements for the posts of specialists definitely specify that practice is permitted in the speciality only, and that no one can be selected without the requisite post-graduate specialist qualification.

I think it is possible to lay down certain broad principles of consultant practice. If these are scrupulously followed, they are less likely to be charged with adopting unethical standards in their practice by their colleagues.

The first is a very well established and accepted principle that, emergencies apart, a consultant should only see a patient with or on the recommendation of the family doctor and send him the report afterwards. In other words, a specialist has

no direct contact with the patient, and whatever contact he establishes is not continuous but short and periodic. Most of the specialists do adhere to this ; but this ideal is not always achievable for the simple reason that a large number of our patients do not happen to have a family doctor. This difficulty was very well illustrated by a senior consultant. He wanted to know as to what he should do, if a patient comes to him from an outside station without a reference—as is very often the case. It would be ridiculous for him to ask him first to go to any general practitioner in the city and get a letter from him in order to have his opinion.

Most of the consultants are certainly not guilty of taking over the treatment of patients referred to them by their family doctors themselves, or to put it rather bluntly of "snatching their patients."

Robert Saundby (1907) lays down that a consultant's attendance on a patient terminates with consultation. If the patient has no family doctor he should advise him to have one who should carry out the treatment outlined by him. Though a consultant is not bound to ask from a patient who had come to him for his opinion the name of his regular medical attendant, and may treat the case without reference to any one, provided that he can do so with justice to the patient, but he must not visit the patient for this purpose. If the patient requires to be treated in bed, the consultant should communicate with the regular medical attendant.

Secondly, consultant practice should be confined to the speciality professed by the doctor, as already pointed out. It may perhaps interest us to know that the World Medical Association has not placed this restriction on specialist practice.

Thirdly, a consultant should also refrain from the temptation of prescribing too many drugs, i.e., he should not indulge in Multiple Blunderbuss Therapy. With his greater knowledge of the subject, he is more likely to make the correct diagnosis or attempt to establish it and therefore he cannot be easily excused, if he adopts a 'hit and miss' technique in treating patients. According to Saundby (*loc. cit.*) "a consultant should not make trivial changes in treatment, but, when it is possible for him to do so, he should approve of what has been done, either do nothing or make only such suggestions as may supplement if necessary, a phase of treatment which is effecting its object."

Lastly, if a consultant is to do full justice to his hospital work, he should do only minimal or no domiciliary practice. He will have also to restrict his consulting hours for private patients to a couple of hours or so during the day.

It should perhaps be emphasised that the correct code of ethical relationship is to be laid down and practised by the specialists and consultants first. The lead has to come from them, as a good number of them are not only senior but teachers too, and command general respect.

Before I conclude, I may make it clear that these views are entirely my own. They have been submitted to you with the utmost humility and awareness of the fact that I have not that experience or seniority to have dwelt at such length on such a delicate topic. The idea of delivering a sermon or laying down 'do's' or 'dont's' of conduct has never occurred to me.

There will always be a few who will deliberately flout all codes of ethics, but such persons can be seen in all walks of life, and should not concern us unnecessarily. We can perhaps make a beginning by forming small sub-committees of senior doctors of each category in big districts under the auspices of I.M.A. who will encourage the establishment of good relations and use their influence in minimising friction.

I should consider myself amply rewarded if I have been able to impress the desirability of judging the action of our colleagues in this light, before an accusing finger is raised against them.

"Whatsoever ye would that men should do to you, do ye even so to them."

—*St. Matthew VII, 12*

REFERENCES

OSLER, WILLIAM—Aequanimitas with Other Addresses, Third Edition, 1948, Lewis, London.

RUSSELL, BERTRAND—An Outline of Philosophy, 1927, Allen, London.

SAUNDBY, R.—Medical Ethics, 1907, Charles Griffith, London.

SHAW, BERNARD—The Doctor's Dilemma, 1906.

CASE NOTES

TUBEROUS SCLEROSIS

AMIYA K. ROY CHOWDHURY, M.D. (CAL.), D.T.M.

Visiting Physician and Lecturer in Medicine

AND

A. K. SEN, M.B., D.P.H. (LOND.), F.R.C.S. (ENG.)

Director-professor of Surgery

R. G. Kar Medical College and Hospitals, Calcutta

INTRODUCTION

Tuberous sclerosis or *Sclerose Tubereuse* first described in detail by Bourneville (1880) quoted by Globus (1947),

though it refers to the sclerotic nodules in brain, may affect many other parts of the body. Von Recklinghausen in 1863 described a case of 'hyperplastic tumours of the brain associated with myoma of heart' (Globus, *loc. cit.*). A year later Virchow recorded a similar case (Dawson, 1954). Tumours of different organs have also been described including tumours of the kidney (Anderson, 1953). Adenoma sebaceum, a term coined by Balzar (1885), refers to the papular eruption with butterfly distribution which makes its first appearance at adolescence on the nasolabial folds and then spreads symmetrically over the rest of the face being usually limited below by the clavicle. Collagenous plaques may also appear as a shagreen patch on the back and flanks. Subungual or periungual tumours (Koenen, 1931), dystrophic changes in the nails, angiomata, brown and red tags, *café-au-lait* spots, pigmented or depigmented patches, oral fibrous nodules (Butterworth *et al*, 1941), and other abnormalities have also been described (Brain, 1955).

Epiloia or Sherlock's triad of epilepsy, mental defect and adenoma sebaceum may not be present in all the cases and abortive forms have been described where the symptoms are minimal or overlooked or where the lesions have been discovered during postmortem studies. Pulmonary tuberous sclerosis is rare (Ellman, 1955). Bone changes have also been recorded (Ormsby, 1948; Dawson, 1954).

The nature of tuberous sclerosis is much disputed but the most accepted view is that it is due to congenital dysplasia, involving any of the three germinal layers, occurring in early foetal life.

This case is presented here in view of the rarity of this disorder and because she showed many unusual features.

Case Report

Miss M. C., a Bengali Hindu girl aged 16, came to the medical outpatients department in 1955 with the complaints of frequent attacks of fever, vague pain with a sensation of heaviness and a slowly growing lump in the left hypochondriac region for about four years.

On examination, deep brown papules were noticed on her face standing out conspicuously against her light brown skin. These were distributed symmetrically over her cheeks, nasolabial folds, nose and chin (Fig. 1, *vide* Plate) and their size varied from a pinhead to a split pea. These began to appear from the age of 10 and were gradually increasing. She had epileptic fits only for two years between the ages of 6 to 8. She appeared to be shy and depressed but had no apparent psychosis or mental deficiency. Her abdomen was enlarged and palpation revealed a huge non-pulsatile hard lump occupying the left hypochondriac, lumbar and partly the umbilical regions. It was freely mobile and moved also with respiration. There was an ill-defined oblique groove between two parts of the lump just below the left costal margin and the upper pole could not be reached. It was not tender and there was no muscle-guard. The left renal angle was full. The liver was just palpable. On admission, a resonant band was detected in front of the swelling, and the lump was diagnosed as a renal tumour. Rectal and gynaecological examinations revealed no abnormalities.

Her menstruation started at the age of 12 years with a cycle of 30 days and the duration of flow for 4 days. Her father and mother died and the cause of death was unknown. She had an elder brother who was apparently normal.

Laboratory Investigations :

W.B.C.—7,600 per c.mm. (75 per cent polymorphs, 20 per cent lymphocytes, 5 per cent monocytes). Haemoglobin was 75 per cent (Sahli). Sedimentation rate was 57·25 mm. per hour. Clotting time was 3 minutes. Blood biochemistry NPN—31 mg. per cent, uric acid—3·5 mg. per cent, creatinine—1·2 mg. per cent.

Radiography—(i) Skull bones were thickened. There were two foci of faint calcification in the brain. (ii) Chest showed some mottling of the perihilar regions and of the right basal region. (iii) The sacrum and coccyx showed forking of the lower end. (iv) Hands: few nodes were present near the base of the terminal phalanges.

Excretion urography—No excretion of dye from the left kidney ; right side was normal.

Ophthalmoscopy—No phakomata were seen.

ECG—Incomplete right bundle branch block with T inversion over right ventricular surface leads.

EEG was not done. Intelligence tests : Slightly below average ability.

Operation :

Laparotomy was performed on 13-1-56. On opening the abdomen numerous adhesions were found between the renal tumour on the left and colon, mesentery and posterior abdominal wall. These were separated with great difficulty. The pedicle of the tumour was clamped and ligated and the tumour was dissected out. The raw surface was peritonised and the abdomen was closed in the usual way. Convalescence was uneventful.

The Tumour :

The tumour (Fig. 2, *vide* Plate) after being taken out began to shrink in size rapidly and two hours after operation weighed 8 lb. and measured 12×8 inches. Further shrinkage occurred when

kept in formalin. *Macrosection* revealed distortion of the normal structure of the kidney which was mostly replaced by the new growth. The latter showed red, dark and light brown mottled areas on section. *Microsection* (Fig. 3, vide Plate) showed tumour cells arising from the pericytes of each of the arteriolar walls. Conflicting opinions were given on a thick section and the nature of the tumour was confused for lipoangiosarcoma but closer inspection of a thin section revealed adult fat tissue and typical peritheliomatous growth.

Facial papule—One of the facial papules, when excised, bled profusely as it was highly vascular. *Microsection* (Fig. 4, *vide* Plate) showed acanthosis, elongated papillae, perifollicular infiltration, hair follicles, abundance of loose connective tissue, muscle fibres and vascular sinuses.

Follow-up—The patient remained free from any trouble for more than a year. She came back on 27-3-58 for pain in the right lumbar region, of one year's duration. On examination, an abdominal lump was palpable on the right of midline extending from above the costal margin to the level of the umbilicus below. Excretion urography suggested hydronephrotic changes with distended pelvis and clubbing of the heads of calyces in the right kidney. No abnormality was detected in urine. Blood NPN was 37·9 mg. per cent, uric acid—3·5 mg. per cent and creatinine—1·3 mg. per cent.

Discussion

Tuberous sclerosis occurs in all races and affects both sexes equally (Ormsby & Montgomery, 1948). Its incidence is about 1 in 150,000 of the population in England (Dawson, 1954). Familial cases have been reported but in about 50 per cent of the patients the family history is negative and such cases are supposed to have arisen by mutation (Jordan, 1956). Ganguli *et al* (1955) described a classical case of tuberous sclerosis in a Bengali boy. The case mentioned here is a Bengali Hindu girl who was affected with this rare disease. None of her family members were apparently affected with any of the stigmata of this disease. Though most of such cases present mental defect, epilepsy or skin changes, this case came with febrile attacks and renal tumour. She had epileptic fits only for two years during her childhood.

Adenoma sebaceum then appeared after an interval of two years and gradually increased and its histopathology differed somewhat from the usual three types described (Roxburgh, 1956). It is now generally agreed that Balzar's case of adenoma sebaceum, histologically, was one of multiple benign cystic epithelioma and the difference between the other two types appears to be one of degree of hyperplasia of the different tissues (Ormsby & Montgomery, 1948). The histological feature of the facial papule in this case showed acanthosis, perifollicular infiltration, loose connective tissue, muscle fibres and vascular sinuses and does not strictly conform to any one of the three types mentioned. It seems to be intermediate in character as neither hyperplasia of sebaceous or sweat glands nor any hyperkeratosis was noticed in this case.

Renal tumours are the commonest visceral manifestation. They may be bilateral or multiple and yellowish in colour. Fibromata, hypernephroma, adenosarcoma, teratoma and hamartoma (Anderson, 1953) of kidney have been found. These tumours contain a variable mixture of fatty, fibrous, muscular and vascular tissues or renal epithelium. Willis (1948) described types of carcinoma of kidney which are highly vascular and haemorrhagic and because of these characteristics it is a source of confusion for such wrong histological diagnosis as perithelioma, endothelioma and angiosarcoma. According to him this misconception arises from lack of experience as haemorrhage into tubular and cystic glandular structures are very common. It is interesting to note that a thick section of the renal tumour in this case was interpreted as lipoangiosarcoma by some while others did not agree, and a thinner section was interpreted by them as perithelioma. We agree with the latter view as the histological structure suggested that the tumour arose from the perithelial cells of the vascular adventitia around a central vessel. The quick shrinkage of the tumour, the uniformity and the character of the histological pattern do not convey the idea of haemorrhage in tubules or cystic glandular structures. The tumour in this case was unilateral when first seen (1955) and was probably growing for more than four years without any evidence of metastasis. Two and half years later (1958) the patient came back with a renal tumour of the other side which appeared normal on both clinical and radiological examinations in 1955. In 1958, however, pyelography suggested hydronephrotic changes of the remaining kidney and there was also slight elevation of NPN content of blood.

Radiography of this case indicated a thickening of the skull bones with two faint spots of intracerebral calcification. Lower end of coccyx and sacrum showed well-marked forking. A few ungual fibroma were also present. Regarding lungs, there was a doubtful mottling of the perihilar regions but there was no disability as would be expected from her age as most of the cases of pulmonary tuberous sclerosis present symptoms after the age of 20 years. ECG revealed incomplete right bundle branch block which may be normal.

Summary

An unusual case of adenoma sebaceum affecting many parts of the body is described here. She had frequent bouts of temperature and a past history of attacks of transient epileptic fits. She came in 1955 with unilateral renal tumour of four years' duration which was removed as the other kidney appeared normal at the time, but subsequently the other kidney was also involved. Few foci of faint intracerebral calcification and bony changes in skull and sacrum were noted. There were few ungual growths. Pulmonary and cardiac changes were

doubtful. The histopathology of the facial papule is described and the peritheliomatous nature of the renal tumour is discussed.

ACKNOWLEDGMENTS

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REFERENCES

ANDERSON, W. A. D.—Pathology, Second Edition, 1953, Mosby, St. Louis.

BALZAR, F. (1885)—Quoted by Brain (1955).

BOURNEVILLE, D. M. (1880)—Quoted by Globus (1947).

BRAIN, W. R.—Diseases of the Nervous System, Fifth Edition, 1955, Oxford, London.

BUTTERWORTH, T. AND WILSON, M.—*Arch. Dermat. & Syph.*, **43** : 1, 1941.

DAWSON, J.—*Quart. J. Med.*, **23** : 113, 1954.

ELLMAN, P.—The Medical Annual, 1955, Wright, Bristol.

GANGULI, H., AGARWAL, H. S. AND SINHA, A. K.—*J. Indian M. A.*, **24** : 290, 1955.

GLOBUS, J. H.—Nelson Medicine, Vol. VI, 1947, Nelson, New York.

JORDAN, W. M.—*Brit. M. J.*, **2** : 132, 1956.

KOENEN, J. (1931)—Quoted by Butterworth and Wilson (1941).

ORMSBY, C. S. AND MONTGOMERY, H.—Diseases of Skin, Seventh Edition, 1948, Lea, Philadelphia.

ROXBURGH, A. C.—Common Skin Diseases, Tenth Edition, 1955, Lewis, London.

WILLIS, R. A.—Pathology of Tumours, 1948, Butterworth, London.

RETROSTERNAL PAIN SIMULATING MYOCARDIAL INFARCTION IN A CASE OF POSTOPERATIVE ATELECTASIS OF THE LUNG

K. K. DATEY, B.A., M.D., M.R.C.P. (LOND.), F.C.C.P. (U.S.A.), D.T.M. & H. (LOND.), D.C.H. (LOND.), B.SC., M.R.C.P.E.

Hon. Physician, G. S. Medical College and K. E. M. Hospital and Cardiologist, Bombay Hospital

AND

M. N. VYAS, M.D.

Medical Registrar, Bombay Hospital, Bombay

INTRODUCTION

Recent literature is replete with reports of postoperative atelectasis of the lung, but case reports of atelectasis of the lung with severe retrosternal pain simulating acute myocardial infarction are rare. Herrick (1938) makes a passing mention that massive collapse of the lung has been mistaken for myocardial infarction. Plotz (1957) states that he has seen three cases of postoperative atelectasis that were wrongly diagnosed as myocardial infarction. Friedberg (1956) makes a casual reference that massive collapse of the lung may be mistaken for myocardial infarction. However, even in these references, there is no mention of severe retrosternal pain as the presenting feature in postoperative atelectasis.

As reports of retrosternal pain simulating myocardial infarction in atelectasis of the lung are rare, we are presenting a case observed by us.

CASE REPORT

A 45-year old male was admitted to the Bombay Hospital on 14-10-57 with a history of chronic abdominal pain of four years' duration. Three days later, on 17-10-57, an exploratory laparotomy was performed under general anaesthesia and the appendix was removed.

Twenty-four hours after the operation, the patient started complaining of severe constricting retrosternal pain in the lower half of the sternum. The pain radiated to the back, but not to the arms or neck.

On examination, the patient was found to be in extremis. He was perspiring, cold and cyanosed ; the blood pressure was unrecordable, the temperature was 97°F ; the heart rate was 112/min., and the respiration was 28/min. The trachea was deviated to the left ; and there was diminished movement, impairment of note, reduced air entry and a few moist sounds at the base of the left lung. Under the circumstances, a diagnosis of postoperative atelectasis was made. However, the possibility of acute myocardial infarction, in addition, could not be ruled out with certainty. Urgent bronchoscopic aspiration was not carried out as the patient's condition was very low.

At a result of appropriate therapy with noradrenaline, pethidine and other measures to counteract pain and shock, his blood pressure rose to 90/70 mm. of Hg.

E.C.G.—An electrocardiogram taken the same evening (Fig. 1) shortly after the onset of pain, when the blood pressure was still very low (systolic about 70 mm. of Hg), showed a sinus tachycardia at a rate of 100/min., slight depression of S-T segments in V_4 and V_5 and tall peaked T waves in V_3, V_4 and V_5.

Skiagram—An x-ray of the chest taken the next morning showed collapse of the left lung mainly in the lower and middle zones and to a lesser extent in the upper zone (Fig. 2, *vide* Plate).

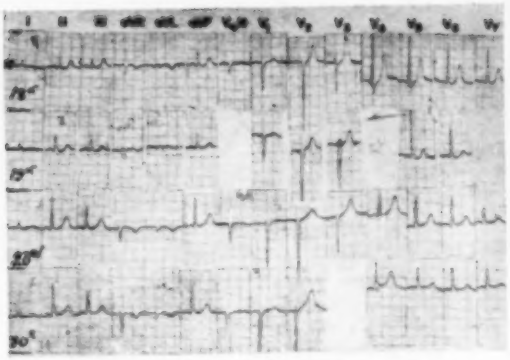

FIG. 1—SHOWING ELECTROCARDIOGRAMS TAKEN ON 18TH, 19TH, 23RD AND 30TH OCTOBER, 1957.

An electrocardiogram (Fig. 1) taken on 19-10-57, twentyfour hours after the onset of pain, when the blood pressure had been stabilised at about 100 mm. of Hg systolic, showed a heart rate of 95/min., isoelectric S-T segments and T waves of normal amplitude. The retrosternal pain continued for almost three days, and subsided only with re-expansion of the lung as seen in a subsequent x-ray taken on 22-10-57 (Fig. 3, *vide* Plate).

The electrocardiogram taken on 23-10-57 five days after the commencement of the attack, when the pain had subsided, the lung had fully re-expanded and the blood pressure had been stabilised, showed a heart rate of 63/min., with S-T segments and T waves within normal limits. An electrocardiogram taken a week later on 30-10-57 was similar to the one taken on 23-10-57 after the attack of pain had subsided (Fig. 1).

DISCUSSION

The first electrocardiogram, when the patient was in shock, showed S-T and T wave changes in V_2, V_4 and V_5, which might suggest myocardial ischaemia. A second electrocardiogram taken twenty-four hours later when the blood pressure had been stabilised showed that these changes had returned to within normal limits. Although the first electrocardiogram showed S-T and T wave changes of myocardial ischaemia, we feel that reversion to normality in the second electrocardiagram, while the patient still continued to experience pain, is not consistent with the diagnosis of acute myocardial infarction. It would appear that the pattern of myocardial ischaemia in the first electrocardiogram was probably secondary to the marked fall in blood pressure, resulting in S-T and T wave changes which reverted to normal after the blood pressure had been brought to near-normal levels.

The possibility that the pain could have been caused by a pulmonary embolus has to be considered. However, serial electrocardiogram did not show any evidence of right ventricular strain or clockwise rotation of the heart. Hence, it is unlikely that the pain could have been caused by pulmonary embolism. Dissecting aneurysm of the aorta was ruled out in the absence of any clinical or radiological evidences of this condition. It is, therefore, felt that the retrosternal pain simulating myocardial infarction was secondary to a massive collapse of the lung, as the pain disappeared after the lung had re-expanded.

Pain in massive collapse of the lung usually occurs in the corresponding lower half of the chest and is ascribed to a strong pull on the diaphragm and its costal attachments as a result of an increase in negative intrapleural pressure accompanying atelectasis (Hayes and Hayes, 1954). It is difficult to understand how pain originating in a hemidiaphragm with its essentially unilateral innervation could give rise to pain localised to the midline in the substernal region and the spine, without pain in the corresponding hemithorax. A more probable explanation, therefore, would seem to be that the pain resulted from a severe pull on the structures of the mediastinum—for it is known that mediastinal pain may closely mimic pain of coronary heart disease.

SUMMARY

An unusual case of massive postoperative atelectasis, with severe retrosternal pain closely simulating acute myocardial infarction, is presented.

Posible mechanisms of this pain are discussed.

REFERENCES

FRIEDBERG, C. K.—Diseases of the Heart, Second Edition, 1956, Saunders, Philadelphia and London, p. 557.

HAYES, E. W. AND HAYES, E. W. JR.—Atelectasis in Non-tuberculous Diseases of the Chest, Edited by Andrew L. Banyai, 1954, Thomas, Springfield, Ill., p. 690.

HERRICK, J. B.—*Ann. Int. Med.*, **11** : 2079, 1938.

PLOTZ, M.—Coronary Heart Disease, 1957, Hoeber, New York, p. 243.

URTICARIA PIGMENTOSA

S. N. CHAUDHURI, B.SC., M.B.B.S., *Calcutta*

Urticaria pigmentosa is a rare chronic skin condition characterised by hyperpigmented macules, papules or nodules which may become urticarial when irritated by rubbing. The concept of urticaria pigmentosa has now changed. It is not a single simple entity but includes not only the urticating macular pigmentation beginning usually in the first six months of life and tending to disappear at puberty, but also some solitary lesions appearing like a naevus, a xanthoma, a vesicle, a nodule or a tumour. It also includes systemic types presenting variable skin lesions such as hyperpigmentation and telangiectasia with or without bony or visceral changes. Lastly it may include another type, such as malignant type. The two latter types are generally acquired late in life. In all the types, however, there is one common histopathological finding, viz., increased

number of tissue mast cells. Therefore, the designation mastocytosis will possibly be a more happy one for urticaria pigmentosa.

Case Report

M. R., Hindu, male, aged 2 years with average build and nutrition consulted the writer in the month of September, 1957. According to his father's version the child had an attack of measles at the age of six months which was associated with high fever and erythematous rash all over the body. The child recovered after a few days and the rash subsided. After about one month another crop of erythematous rash reappeared all over the body and this time it was associated with intense itching. The intensity of the itching, however, gradually subsided within 3-4 weeks but the rash still persisted.

On examination the patient had rash, occasional itching with urticarial wheal over the trunk, thighs, legs, arms, and face (Figs. 1 and 2, *vide* Plate). The palms, soles and mucous membrane were free. The rash was blackish red in colour and not elevated above the surface. No other systemic findings were present. The liver, the spleen and the lymph glands were not palpable. The child was otherwise quite cheerful and jolly.

Laboratory investigation—Haemoglobin content, W.B.C., both total and differential, and W.R. examination revealed no abnormal findings. The stool and the urine examinations were normal. The bone marrow examination and the x-ray of the bones were not done.

Skin biopsy was made and the specimen was fixed in 80 per cent chilled alcohol. The sections were stained with haematoxylin and eosin. There was slight hyperkeratosis, otherwise the epidermis was normal. In the dermis there was infiltration of spindle-shaped cells which were aggregated especially in the upper part. Plasma cells, leukocytes and histiocytes were not found. The sections were stained also with 0·1 per cent toluidine blue solution after which the spindle-shaped cells were identified as nothing but the mast cells (Fig. 3, *vide* Plate) with plenty of metachromatic granules in them (Fig. 4, *vide* Plate). The case had been diagnosed as urticaria pigmentosa. Antihistaminic drugs, vitamins B_1 and C were tried without any success. This case has been examined again very recently and the clinical condition has not been seen to alter in any way.

Summary

A typical and rare case of urticaria pigmentosa with the characteristic histopathological finding is presented.

Acknowledgment

My grateful thanks are due to Drs. R. K. Panja of S. S. K. M. Hospital, A. K. Mukherjee and H. N. Ray of School of Tropical Medicine, Calcutta, for their kind help in preparation of this article.

Appeal to Members of the Indian Medical Association for Donations to the Building Fund of I.M.A. Central Office at New Delhi

Members are aware that as the result of prolonged negotiations the Government of India allotted us a plot of land in New Delhi measuring 0·5 acre at a concession price of Rs. 18,000/- plus 5 per cent ground rent, for the construction of a building for the Central Office of the Indian Medical Association. The foundation stone has already been kindly laid by Dr. Rajendra Prasad, the President of the Indian Union, in September, 1958.

Collections to the Building Fund so far fall far short of our requirements. You will appreciate that we have practically no other source of augmenting the Building Fund except by voluntary contributions particularly from the members of the Indian Medical Association.

The Working Committee and the Central Council had requested every member to donate a minimum sum of Rs. 50/- only. Some have already done so and some have donated much more than the suggested minimum. It is however a matter of regret that some others have not contributed their share.

In view of the urgency of the matter I appeal to every member and every Branch Secretary to kindly take active steps in this respect. Contributions may be sent either direct to the Central Office or through the respective Branch Secretaries.

C. O. Karunakaran
President, Indian Medical Association

JOURNAL OF THE
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DRUGS AND INSTRUMENTS

It is gratifying to note that at the meetings of the Working Committee and the Central Council of the Indian Medical Asscciation as well as at the 35th All India Medical Conference held at Cuttack in December 1958, a large majority of qualified medical practitioners from various parts of India stressed the urgent need for clarification of the Government policy in respect of drugs, instruments and appliances. Dr. C. O. Karunakaran, President of the Conference in his address pointedly referred to this important problem.

Dr. Karunakaran said: "The march of scientific medicine from conquest to conquest of disease and ill-health has been made possible by accurately standardised potent drugs and precision instruments. These should be available at reasonable cost. We are aware of the enormous drain on our limited financial resources caused by the import of drugs and instruments. We are prepared to make all reasonable sacrifice. There is not a single member of our profession who will not purchase a product of Indian manufacture if it is 90 per cent as good as imported goods and not more expensive. Panicky restrictions of imports, when reserves of foreign currency fall, should have no place in the case of life-saving drugs and essential instruments and appliances."

Dr. Karunakaran opined: "During the last world war home production met 70 per cent of our drug requirements. The potentialities of approximate self-sufficiency are therefore evident. A master plan which will protect the economic interests of the nation without unfair sacrifice of the interests of the medical profession and the suffering millions is long overdue. A brief classification into two divisions based on home production should be easy. There can be no objection to the total ban on imports or the imposition of prohibitive duty on items in which a fair measure of self-sufficiency exists. But price and quality should both be protected. The prices should not be higher than that of foreign products imported *free of tax* (italics ours); and there should also be adequate quality control and those who violate standards should be ruthlessly weeded out."

"Drugs, instruments and appliances which are not produced in India or in which there is a gross insufficiency, may be divided into two groups. Those which the medical profession considered indispensable should be allowed *duty-free* (italics ours) import. Life-saving drugs are as important to man as food and to impose duty on them is akin to tax on foodgrains when people starve. Other items can be divided into different categories according to their degree of usefulness to the profession and a graded tax imposed."

The policies enunciated above by Dr. Karunakaran, need careful and immediate consideration by the Government of India. The interests of the medical profession in this matter cannot be different from that of the national Government, as these policies are in the best interests of the people of India. It is, therefore, high time for Authority to take the I. M. A. into confidence and seek its expert advice for the immediate solution of these interrelated vital problems.

The Pharmaceutical Enquiry Committee appointed by the Government of India found that out of 1,643 factories in India, only 93 were worth mentioning. The Association is anxious to know whether the Government have advised the small drug manufacturing firms to pool their resources and take up only a few items in which they can attain high quality consistent with economic production. While we sympathise with these small manufacturers, who are struggling against odds, it is our duty to warn them that sub-standard products will, in the long run, not only ruin them but will also retard the progress of scientific medicine. We feel that the end of the second plan period should be the target date after which no manufacturer of drugs, instruments and medical appliances should be allowed to continue their trade in India, if the products are not up to the standard. In this connection, we repeat once again that the Government must render adequate financial aid to the deserving Indian manufacturers so that they may be able to conform to the regulations imposed by the Government, in accordance with the recommendations of the Pharmaceutical Enquiry Committee.

It may be mentioned here, that the firms, Indian and foreign, actually manufacturing drugs, instruments and appliances need a lot of machinery and some other articles to be imported from abroad. In cases, where production in India would be economic and conserve foreign exchange, it may naturally be expected that the Government would issue the import licenses as quickly as practicable. Similarly the well-known foreign firms which are now importing life-saving drugs, x-ray plates etc. must be asked to complete construction of their factories in India and start large-scale productions of these essential drugs and appliances, within the next few years.

CURRENT MEDICAL LITERATURE

Use of Penicillinase in Penicillin Reactions

BECKER, R. M. (*Ann. Int. Med.*, **48**: 1228, 1958) of Madison, Wisconsin, in reporting on 46 patients with penicillin reactions treated with penicillinase in single (1,000,000 units) or multiple injections, observes:

Penicillinase is an enzyme specific for its substrate penicillin. Its inactivating action against penicillin has been utilised for years in the clinical laboratory in bacteriologic media to inhibit penicillin in body fluids to be cultured. Penicillinase can be obtained from several strains of bacteria, including staphylococci and *Escherichia coli*. Commercially it is produced in greatest abundance from cultures of *Bacillus cereus*, strain NRRL-B 569 (Schenley Laboratories).

Forty-six patients with penicillin reactions were treated with penicillinase. Twenty-four of these patients were treated with intramuscular penicillinase alone, with uniformly good results. The other 22 patients had previously received or were given concomitant therapy with various antihistamines and/or ACTH and steroids. In 20 of these patients the favourable clinical response seemed to be directly attributable to the penicillinase. It is interesting to note that in the two cases with a poor response, the penicillinase was given weeks to months after the reaction started. Also, in one case that could be classified as only a fair response, the penicillinase was given two weeks after the onset of the reaction.

No systemic toxic reactions to single or multiple injections of penicillinase were noted. A few patients complained of pain at the site of injection, and one patient had a local reaction with induration which may or may not have been due to the enzyme. No local or systemic toxic effects were noted in the 20 patients and many guinea-pigs reported in the initial study.

Penicillinase should prove to be extremely valuable adjuvant therapy in the treatment of penicillin reactions.

Chloroquine in Rheumatoid Arthritis

FULD, H. AND HORWICH, L. (*Brit. M. J.*, **2**: 1199, 1958) from the Sefton General Hospital, Liverpool, in reporting on the results of treatment and follow-up of 39 patients for a period of from 3 months to 4 years observe:

Complete remission of the disease process was obtained in 30 per cent of cases, a major improvement occurred in 50 per cent, and insignificant or no benefit was noted in about 20 per cent of the patients.

The drug proved harmless and was well tolerated in larger doses than used by other authors. Relapses whilst on chloroquine were not observed in the series.

The authors recommend a regime of treatment consisting of bed rest, reduced pyrexia, blood transfusions, and salicylates during the first three weeks of treatment, and tablets of chloroquine sulphate 200 mg. *t.d.s.*, throughout the treatment or immediately after induced fever—this dose of chloroquine to be continued until a remission has been obtained, when the dose may be decreased to 400 mg. daily (equals 300 mg. base). The maintenance therapy may be required for 12 months or longer.

Anuria Due to Carbon Tetrachloride Intoxication

GUILD, W. R., YOUNG, J. V. AND MERRIL, J. P. (*Ann. Int. Med.*, **48**: 1221, 1958) from the Department of Medicine, Peter Bent Braigham Hospital and Harvard Medical School, Boston, Massachusetts, write that there are many drugs and chemicals which can produce renal injury resulting in acute urinary suppression. Among these is carbon tetrachloride, which is widely used as an industrial solvent, as a household cleanser, as a vermifuge, and as a constituent of some types of fire extinguishers. This report is a clinical analysis of 20 patients with anuria due to carbon tetrachloride intoxication (by inhalation in 16 cases and by ingestion in 4 cases) seen at the Peter Bent Braigham Hospital between 1948 and 1957.

Calcium Calculi

HODGKINSON, A. AND PYRAH, L. N. (*Brit. J. Surg.*, **46**: 10, 1958, Ref. *Practitioner*, **181**: 663, 1958) from an investigation of 344 patients with calcium calculi of renal origin conclude that "a high urinary excretion of calcium does not, by itself, result in stone formation, but it increases the chance that stone formation will occur, and it appears to influence the type of stone formed". The normal range for the urinary excretion of calcium by adults on a normal diet was 100 to 300 mg. a day for men and 100 to 250 mg. a day for women. Approximately two-thirds of the patients with stones had average urinary calcium values within or below this normal range. Conversely, approximately 8 per cent of normal adults were found to have urinary calcium values greater than 300 mg. a day for men and 250 mg. a day for women, whereas the incidence of calcium calculi of renal origin in the general population is probably less than 0·2 per cent. The incidence of high urinary calcium values in patients with a history of recumbency at some time in the past, a family history of stone, or an anatomical abnormality of kidneys was approximately the same as that in calculus patients as a whole. Parathyroid adenoma or hypertrophy was found at neck exploration in 2·3 per cent of the patients in this series. The urinary excretion of inorganic phosphorus by calculus patients did not differ appreciably from that of normal individuals.

Experimental Urolithiasis in Rat with Foreign Body in the Bladder and Role of Infection in its Production

CHAKRAVARTI, H. S. AND BANERJEE, R. (*J. Urol.*, **78**: 785, 1958) used the technique of Vermeulen *et al* in producing experimentally stones in the urinary bladders of rats by introducing directly into them pieces of zinc after open operation and tried to determine the effect of the drugs in preventing the formation of the stones.

In two groups of albino rats, experimental production of urinary lithiasis was tried by introducing a piece of zinc weighing 15-20 mg. in the bladder of the animal. The animals were sacrificed after 4-6 weeks to find out the amount of stone formed.

In the first group (control) of 14 rats, no antibiotic was given during the period of experiment. Stones were formed in all of them except in one and the weight of stones formed varied from 3 to 286 mg.

In the second group of 18 rats, an adequate quantity of combined penicillin and streptomycin was given daily after operation and in none of the rats was any appreciable quantity of stone formed.

Urinary pH of the first group of rats was on the alkaline side and that of the second group was on the acidic side. Surface tension of the urine did not show any variation in the two groups.

It is concluded that where adequate aseptic precaution is taken at the time of operation and where the whole experimental period is covered with adequate antibiotic therapy, experimental production of urinary lithiasis is not possible by introducing a piece of zinc in the bladder of the rat.

100 Vaginal Deliveries Following Caesarian Section

RIVA, H. L. AND BREN, J. L. (*Am. J. Obst. & Gynec.*, **76**: 192, 1958) from the Obstetric and Gynecological Service, Walter Reed Army Hospital, Washington from an analysis of one hundred consecutive vaginal deliveries in women who had had previous caesarian section observe :

This group of patients represented 70·24 per cent of all previous caesarean section cases seen in a 5 to 6 year period.

Forty-three per cent of this group had been delivered vaginally one or more times as compared to 57 per cent who had never experienced a vaginal delivery.

Thirty-five per cent of these patients had their initial section for cephalopelvic disproportion. The weight of the infants played a role in allowing for successful vaginal delivery. In 77 per cent of the cases, the infants delivered vaginally weighed less than those delivered by caesarean section. In most cases, pelvimetry studies in this group disclosed an adequate pelvis.

Complications were minimal with no frank or occult rupture of the uterus encountered.

There was no maternal death in this group and all foetal mortality could be corrected. (*Authors' summary*).

Rupture of Uterus : Twenty-Year Report

FERGUSON, R. K. AND REID, D. E. (*Am. J. Obst. & Gynec.*, **76**: 172, 1958) from the Department of Obstetrics, Harvard Medical School and the Boston Lying-in Hospital, Boston give in the following lines the summary of their observations on the rupture of the uterus during the period of from 1935 to 1955 :

Rupture of the uterus occurred 84 times in 101,108 deliveries, an incidence of 1 : 1,204. The over-all maternal mortality was 5·9 per cent and the total foetal mortality was 29·4 per cent.

The scar of a caesarean section was determined to be the cause of rupture in 60 cases (71 per cent). Eighteen of these were overt and 42 were silent (dehiscence).

Spontaneous uterine rupture occurred 15 times (18 per cent). Obstetrical trauma was the cause of rupture in 9 cases (11 per cent).

The inherent dangers of suprafundic pressure are discussed and further emphasised by case histories of 3 ruptures caused by this obstetrical manoeuvre.

The dangers of pituitrin to stimulate labour, particularly in the multiparous patient, must continue to receive attention.

Methods of relieving shoulder dystocia including cleidotomy are enumerated.

It is difficult to take issue with the dictum "once a caesarean, always a caesarean".

It is concluded, therefore, that the most important single factor in preventing rupture of the uterus lies in the indication for the first caesarean section.

Influence of Diabetes in Men on Reproduction

RUBIN, A. (*Am. J. Obst. & Gynec.*, **76**: 25, 1958) from the Department of Obstetrics & Gyneclogy, School of Medicine and Hospital of the University of Pennsylvania writes :

One hundred and ninety-eight men attending outpatient diabetes clinics were interviewed with respect to their reproductive histories. Twenty-five per cent of the subjects 30 to 34 years of age were impotent. The incidence gradually increased with age so that by 50 to 54 years, 53·6 per cent were impotent. The incidence of impotence was apparently not related to the age at onset of the diabetes, its duration or severity, or the presence of vascular or neurological complications.

The diabetic men reported a significantly higher incidence of abortions among their wives than did a control population obtained at random from among nondiabetic men attending an outpatient dental clinic. The diabetic group exhibited no significant differences from the controls with respect to the incidence of conceptions, premature births, stillbirths, malformations, sex ratio of the offspring, and birth weights of offspring. (*Author's summary*).

Constitutional Stigmas and Endometrial Carcinoma

GARNET, J. D. (*Am. J. Obst. & Gynec.*, **76**: 11, 1958) from the Department of Obstetrics and Gynecology and the Benjamin Franklin Clinic of the Pennsylvania Hospital and the Department of Gynecology of the Graduate Hospital of the University of Pennsylvania writes that the constitutional factors of obesity, hypertension, nulliparity, irregular uterine bleeding at the time of the menopause and faulty glucose tolerance occur with sufficient frequency in patients with endometrial carcinoma to be of diagnostic significance.

The same symptom complex is noted in a smaller group of patients with adenomatous hyperplasia of the endometrium. This is suggestive of a common metabolic disorder in patients with endometrial carcinoma and those with adenomatous hyperplasia.

There appears to be some evidence to suggest that prolonged overactivity of the anterior pituitary gland may lead to these diverse constitutional manifestations in both groups of patients.

Effects of Anaesthetic Agents on Uterine Muscle

TALBERT, L. M., MCGAUGHEY, H. S., COREY, E. L. AND THORNTON, W. N. (*Am. J. Obst. & Gynec.*, **75**: 16, 1958) from the Departments of Physiology and Obstetrics and Gynecology, School of Medicine, University of Virginia from the analysis of the effects of commonly employed anaesthetic and sedative agents on human uterine muscle tissue observe :

All of the inhalation anaesthetics tested were found to be markedly depressant to gravid and nongravid uterine muscle activity *in vitro*, with the single exception of trichloroethylene.

Morphine, scopolamine, demerol, atropine, and phenobarbital produced no significant effect on the activity and tonus of uterine muscle samples obtained from both nongravid and gravid uteri.

Nembutal was found to be without marked effect on tissues from nongravid uteri, but to possess a depressant action on samples from the gravid uterus when in sufficiently high concentration.

Magnesium sulphate depressed contractility and lowered tonus in muscle strips from both nongravid and gravid uteri.

Circulating Eosinophils in Labour and Puerperium

MARCUS, M. B., CIBLEY, L. J., BRANDT, M. L., MILLMAN, L. AND BARLAS, D. (*Am. J. Obst. & Gynec.*, **75**: 11, 1958) from the Department of Obstetrics and Gynecology and Pathology, Fordhan Hospital, New York observe :

The normal number of circulating eosinophils varies from 100 to 200 cells per cubic millimeter. Eosinopenia occurs early in pregnancy (the tenth week); an abrupt decrease is noticeable on the day preceding delivery (early labour).

A very sharp decline in eosinophils to zero levels during early labour or a poor response on the first postpartum day may be suggestive of a long and difficult delivery.

Overaction of the hypophyseal adrenocortical endocrine complex results in a decrease of eosinophils. This relative eosinopenia is statistically significant. These changes probably represent increased adrenocortical activity, long continued during pregnancy, reaching a climax in parturition.

One hundred and twenty-four patients were investigated and 372 individual tests conducted. Nine patients had complications associated with the pregnant state.

A rise in circulating eosinophils occurs on the third to the fifth post-partum day. This increase is in the realm of 90 per cent as compared to pregnancy levels.

The lessened rise or even fall of eosinophils in the cases with post-partum complications, as compared to the characteristic rise in uncomplicated cases, is attributed to the stresser characteristics of the complications and their relative severity. The poor response to the stress withdrawal syndrome is indicative of an underlying pathological state occurring in the puerperium.

Tubal Pregnancy

HU, C. Y. AND CHENG, F. K. (*Chinese M. J.*, **76**: 517, 1958) from the Second Military Medical College Hospital and the Sanghai Fourth Municipal Hospital give in the following lines the summary of the pathological analysis of 300 cases of tubal pregnancy :

In tubal pregnancy, the incidence of decidual change of the endometrium was 38·1 per cent. The shorter the duration of vaginal bleeding, the greater is the chance of decidual formation. The causes for the absence of decidual formation are analysed.

Follicular salpingitis is the main cause of tubal pregnancy.

In those cases complicated by acute salpingitis, with death of most of the chorionic villi, the pregnancy test was usually negative. When the villi were intact, the test was often positive.

There was 1 case of tuberculous salpingitis and 2 cases of endometriosis of the tubes.

In 10 cases the corpus luteum of pregnancy was located in the opposite tube.

The presence of accumulated eosinophilic fluid in the tubal mucosa is an aid in the pathologic diagnosis of tubal pregnancy.

The incidence of molar degeneration in tubal pregnancy was 1 per cent.

In 84 cases of tubal pregnancy, microscopic examination revealed trophoblastic cells without evidence of villi.

Abdominal Pain of Cerebral Origin in Children

PRICHARD, J. S. (*Canad. M. A. J.*, **78**: 665, 1958) from the Department of Paediatrics, Faculty of Medicine, University of Toronto and the Hospital for Sick Children, Toronto, Canada, from an analysis of 19 children with abdominal pain of presumed cerebral origin observes :

It was found that they could be divided into two clinical groups : The first, and much the commoner, was characterized by attacks lasting an hour or more and often associated with vasomotor disturbances, nausea, vomiting or headache. Drowsiness was common during the attack. There was a family history of migraine in the majority of children and the electroencephalograms were normal or showed a mild generalised dysrhythmia. It is suggested that these children are examples of abdominal migraine.

The second group is characterised by attacks lasting five or ten minutes and associated in some instances with confusion, vasomotor disturbances, nausea or vomiting. A family history of migraine is not characteristic and the electroencephalogram shows evidence of discharges in the temporal region. It is felt that these are examples of true abdominal epilepsy.

From a therapeutic point of view it is a mistake to call the first group "epilepsy" because the anxiety so engendered in the family group tends to make attacks more frequent.

Cardio-respiratory Effects of Funnel Chest

BÄR, C. G., ZEILHOFER, R. AND HECKEL, K. (*German M. Monthly*, **3** : 113, 1958) of the Department of Medicine, University of Erlangen, from the analysis of lung function studies in 16 patients with funnel chest and of cardiac catherisation studies in 6 of them observe :

Right ventricular pressure, correlated with right atrial pressures, indicated changes similar to those which occur in cases of constrictive pericarditis. It is assumed that the haemodynamic consequences are also similar in the two conditions and may explain the cardiovascular features of funnel chest.

In the advanced stage of the disease right heart failure is the most prominent finding, but was not present in the studied cases : there was no evidence of right ventricular or pulmonary hypertension. Pulmonary functions were also within normal limits, except for a slight increase in residual volume. It is stressed that severe functional impairment is to be expected only in severe chest deformities. In such cases surgical intervention is indicated if only from the cardiological point of view. (*Author's summary*).

Menopausal Osteoporosis

SCHEUER, F. (*Z. Orthop.*, **88** : 471, 1957, Ref. *German M. Monthly*, **3** : 265, 1958) from the Orthopaedic Dept., Univ.-Klinik, Homburg/Saar writes :

Menopausal osteoporosis differs from senile osteoporosis in that it sets in at a comparatively early age and that its symptoms are more pronounced. It remains asymptomatic for a fairly long time, is often accompanied by other menopausal disturbances, and gradually merges into senile osteoporosis. The disease, which is of a progressive nature, appears to be of endocrine origin due to deficient oestrogen production. Treatment with a modification of Albright's endocrine therapy achieved optimal effects with a minimum of side-effects. In many cases improvement practically amounted to a cure.

Surgical Treatment of Funnel Chest

HEGEMANN, G. AND SCHOBERTH, H. (*German M. Monthly*, **3**: 109, 1958) of the Department of Surgery of the University of Erlangen write that the aetiology of funnel chest remains unknown. In 20 of our own operated cases there was no evidence of a retrosternal ligament, believed by some to be the cause of this condition. In all cases with severe symptom there was marked displacement of the heart. *Treatment*—Conservative measures are usually ineffective. In fact, breathing exercises may make the condition worse. Progression of the deformity is related directly to be paradoxical movement on inspiration. Only in a few isolated cases is the eradication of an obstructive lesion, such as enlarged adenoids, followed by improvement. Undoubtedly a very slight degree of funnel chest may correct itself. Absolute indications for operation are (1) an increase in the deformity over a six-month period as measured by a change in the distance from the vertebral column of the manubrium and the point of maximum depression; (2) an increase in the kyphosis; and (3) evidence of cardiac involvement.

The optimum period for surgical intervention is between the ages of 4 and 6 years. However, it may be necessary to correct very severe malformations at an earlier age.

Surgical Technique—(1) Elevation of the sternum after resection of the involved costal cartilages and a transverse wedge sternotomy at the level of the 2nd intercostal space.

Mobilisation of the funnel and reconstruction of the chest wall by extensive longitudinal and transverse incisions of the relevant ribs.

Complete mobilisation of the sternum and re-implantation in the reverse position so that it is angled outwards.

In young patients we prefer the first type of operation, but in the older age groups we have used the second type or a combination of the first two.

Results—The A-P diameter of the thorax was increased in all patients. The maximum increase was 116 per cent, but in the less severe cases it was between 25 and 50 per cent. In one patient no change in the diameter was apparent (this was the case of the 17-year old girl described above). In all but 2 patients a satisfactory cosmetic result was obtained. All patients stated that their exercise tolerance had increased, they were less easily tired, and had less dyspnoea on exertion.

There have been no serious postoperative complications. Small pleural tears cannot always be avoided, but they can be easily repaired and are quite harmless, if endotracheal anaesthesia is used. Postoperatice pneumothorax has not been observed in this series. Postoperative Management—This is important; apart from breathing exercises it should be directed towards correcting the kyphosis. Physiotherapy is, of course, given in the immediate postoperative period. As soon as the wire sling has been removed, exercises to strengthen the muscles of the back are started in addition. These exercises are continued for a period of at least 6 to 12 months after operation.

Management of Undescended Testis

BRUNET, J., MOWBRAY, R. R. DE, AND BISHOP, P. M. F. (*Brit. M. J.*, **1** : 1367, 1958) from the Department of Endocrinology, Guy's Hospital, in presenting a follow-up study of 209 patients with undescended testis stressed on the importance of assessing the initial position of the testis in regard to the choice of treatment.

Hormonal treatment with chorionic gonadotrophin is successful in bringing down more than 60 per cent of a selected group of undescended testes.

There is no evidence that chorionic gonadotrophin in moderate dosage can cause permanent damage to the seminiferous tubules.

Orchidopexy is the treatment of choice when there is a mechanical defect or when chorionic gonadotrophin fails.

Hormonal and surgical treatment should take place about the age of 9 or 10.

Assessment of fertility in 24 patients with bilateral cryptorchidism reveals that 70 per cent of them have a normal degree of fertility 10 years after treatment.

CURRENT TOPICS

UNTOWARD REACTIONS TO PENICILLIN

World production of penicillin is now sufficient to provide more than 250 million courses of treatment annually. Against this staggering total, the number of severe reactions reported remains exceedingly small. Yet it is important that all users of penicillin should be fully aware of the reactions that may occur and of the precautions that should be taken to keep the risks to a minimum. With the aim of providing public health authorities with a readily accessible body of data on which to base their policies, WHO has undertaken a study of these questions, the first results of which form the subject of this article.

"Penicillin is the queen of drugs. It is the most satisfactory weapon known in that it does its particular task with utmost efficiency and negligible harm." This opinion was expressed in 1954 in an American textbook of pharmacology.[1] Can it still be upheld in view of the increasing number of severe and fatal reactions reported in the medical literature? The answer is of vital importance to public health programmes, for penicillin has undoubtedly become the key drug in the control of a wide range of communicable diseases. WHO has a special interest in this question, for the campaigns against treponematosis which it is sponsoring, and which involve millions of people in many parts of the world, would be impossible without penicillin. In December 1956, a questionnaire on the incidence of penicillin reactions was sent to members of the WHO Advisory Panel on Venereal Diseases and Treponematoses, and earlier this year (1958) an analysis of the answers was published in the WHO Bulletin.[2] The same number of the Bulletin also contained a report on penicillin-sensitivity reactions in Taiwan.[3] Following up these studies, a comprehensive review of the literature has now been undertaken by T. Guthe, O. Idsö and R. R. Willcox.[4] It is on this review that the following discussion is mainly based.

The Picture in Outline

Penicillin came into general use in 1943, but the first death from penicillin therapy was not reported until 1946, and another three years elapsed before a second fatality occurred. During the past ten years, however, severe reactions have been reported with increasing frequency, and the number of fatal cases has multiplied rapidly. By 1955 some 560 anaphylactic reactions had been reported, 81 of them fatal, and by 1957 it was estimated that some 1000 deaths from anaphylaxis due to penicillin had occurred in the United States of America alone. To obtain a true picture, however, these figures must be set beside the phenomenal increase in the consumption of penicillin that has taken place during the past 15 years. In 1943, the first year of commercial production in the United States of America, only 29 pounds of crude penicillin were produced; whereas by 1955 the world production of penicillin exceeded 500 tons a year—enough to provide 250 million courses of treatment of 3 million units each.

The increasing frequency with which reactions have been reported in recent years is thus seen to be largely a natural consequence of the vast scale on which penicillin is now being used. Indeed, it is the general absence of untoward reactions that has encouraged such lavish use of penicillin. Unfortunately, it has also encouraged its indiscriminate use. Penicillin has been widely prescribed for all kinds of minor infections, and for conditions in which it is ineffective or not more effective than other drugs; and since it can be bought without prescription, self-medication is common. Severe reactions occur only in patients sensitised by previous exposure to the drug, and it is known that many of the fatalities that have occurred following the legitimate use of penicillin have been attributable to previous unnecessary medication. Naturally, the chances of a patient having had previous treatment with penicillin are today much greater than they were 10 or 15 years ago.

These are the main features of the present situation. In order to analyse it further, it is necessary to examine in some detail the nature of the reactions that may result from penicillin administration.

Types of Reaction of Penicillin

In common with most other drugs, penicillin can produce various types of untoward reaction. These are often referred to collectively as "toxic reactions", but strictly speaking this term should be reserved for quantitative, pharmacological effects experienced by every person receiving a sufficiently large dose of the drug, i.e., for effects which are inherent in the nature of the substance and the severity of which is a function of the dose.

Most modern chemotherapeutic agents have a low toxicity in relation to the therapeutic dose, and penicillin is an outstanding example of this. But these drugs can produce reactions of a different kind, by virtue of the fact that they are potential antigens; repeated administration may produce sensitisation in the patient, leading to allergic skin reactions or anaphylactic shock. The majority of the reactions to antibiotics in general and to penicillin in particular, are produced by this mechanism.

Antibacterial drugs can also produce undesirable reactions by interference with the metabolism of the microbial flora. This can result in superinfection and cross-infection by organisms less affected by the drug than others, or in a temporary exacerbation of symptoms due to the release of noxious substances following microbial lysis. A more serious problem is the development of resistance in the organism against which the drug is being used.

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[1] Drill, V. A. (1954)—Pharmacology in Medicine: a collaborative textbook, New York.
[2] Willcox, R. R.—*Bull. Wld. Hlth. Org.*, **18**: 457, 1958.
[3] Idsöe, O. and Wang, K. Y.—*Bull. Wld. Hlth. Org.*, **18**: 323, 1958.
[4] Guthe, T., Idsöe, O. and Willcox, R. R.—*Bull. Wld. Hlth. Org.*, **19**: (In press).

Local and Systemic Toxic Reactions

On the whole, local toxicity to penicillin has not presented an appreciable problem. The early amorphous preparations of penicillin sometimes produced thrombophlebitis when given intravenously, or pain and cellulitis on intramuscular or subcutaneous administration; and penicillin in oil-beeswax, used between 1945 and 1948, often caused local reactions of an allergic nature. Since the introduction of procaine penicillin with aluminium monostearate (PAM), however, local reactions have virtually ceased. The more recently introduced benzathine penicillin—a particularly long-acting preparation—was at first found to cause pain on injection, but improved preparation have largely overcome this difficulty.

The acute toxicity of the various penicillin salts in animals is very low. Mild systemic toxic reactions were sometimes experienced with the early preparations, owing to the presence of impurities, but such reactions are practically unknown with the highly purified preparations now in use. It has been calculated that for a 70 kg man, the LD_{50} of sodium penicillin would be more than 150 million units—a dose far in excess of what it would be practical to give. There has been isolated reports of damage to the central nervous system, peripheral neuritis, and transient psychosis following intramuscular injection. The pathogenesis of these reactions is nuclear, however, and it is by no means certain that they are true toxic reactions. In any event, they are exceedingly rare. In contrast to the sulphonamides and many other drugs, penicillin does not cause damage to the bone marrow or haemopoietic system, and it can be safely given in severe anaemia. Intrathecal administration of penicillin causes meningeal irritation and serious complications have been reported, but this route of administration is seldom used today. It seems justifiable to conclude that "the toxic effects of penicillin in man are, in the broad run of events, negligible. They certainly have detracted little from the use and usefulness of penicillin in clinical practice and public health programmes."

Allergic Skin Reactions

As already mentioned, allergic reactions differ from true toxic reactions in that they are not inherent in the pharmacological nature of the drug, but are due to hypersensitivity, or altered reactivity, of the patient, usually the result of previous exposure to the drug or a related substance. Moreover, the severity of such reactions is independent of the quantity of drug administered, and they can be produced even by minute doses.

It seems that penicillin can evoke the production of two types of antibody: a skin-sensitising antibody and an antibody responsible for anaphylactic reactions. The skin-sensitising antibodies may produce either an eczematous reaction or an urticarial response. The most frequent form of eczema is contact dermatitis caused by local application of penicillin in the form of ointment or solution, or by prolonged handling of the drug, as in doctors and nurses. Estimates of the frequency of contact dermatitis vary from 4 to 10 per cent of persons exposed to contact with the drug over long periods. It is therefore advisable to avoid local applications of penicillin wherever possible, and in any case not to continue treatment for more than three to five days. Desensitisation is sometimes of value for doctors and nurses.

Another form of eczema can be caused by parenteral administration of penicillin, or by its inhalation. The eruptions are of the erythematovesicular type, resembling those caused by fungal infections (trichophytosis and epidermophytosis), and are characteristically localised to the groins, the interdigital spaces, and the palms and soles. It has been suggested that a previous fungus infection may result in cross-sensitivity to penicillin, as it appears that such reactions may occur in persons not previously exposed to the drug.

Both types of eczematous reaction usually subside rapidly when penicillin is stopped and appropriate treatment given. Topical application of hdyro-cortisone may be of value in prolonged cases. It is rare for generalised eruptions or exfoliative dermatitis to develop. If they do they are generally of a mild type, although serious complications, such as anuria, have been reported, and exfoliative dermatitis may occasionally become haemorrhagic and gangrenous.

"Serum-sickness-like penicillin reactions" is a collective term which has been proposed to describe a group of allergic reactions comprising urticaria, angioneurotic oedema, joint pains, inflammation of the lymph glands, fever, and other manifestations similar to those seen in serum sickness. Such reactions usually follow injections of penicillin, but can also occur after other forms of administration. They may appear within 30 minutes or only after several weeks. With modern preparations of penicillin, such as PAM, it has been estimated that serum-sickness-like reactions occur in 1-2 per cent of all patients receiving the drug. Children appear to be less likely to develop such reactions than adults. Serum-sickness-like reactions are not usually dangerous, but very rarely severe and even fatal complications may develop, such as laryngeal oedema, periarteritis nodosum, purpuric lesions, or cardiovascular collapse. ACTH or cortisone may be life-saving in such cases. Mild reactions usually subside spontaneously within a few days or weeks when penicillin treatment is stopped. The antihistamines may be effective in severe or prolonged cases, but are of no value prophylactically, although an antihistamine-penicillin salt recently introduced has been claimed to obviate allergic reactions in persons sensitive to penicillin. The use of the enzyme penicillinase in cases of urticaria and angioneurotic oedema resistant to other methods is another recent development that has given promising results.

All forms of skin sensitivity to penicillin are usually transient, declining gradually over a period of 6-12 months. Nevertheless, treatment with penicillin should be avoided if possible in patients with a past history of skin reactions, since the symptoms may recur, and the possibility of systemic rather than skin sensitisation has to be kept in mind.

Anaphylactic Reactions

As already indicated, allergic skin reactions to penicillin rarely constitute a danger to life; most of the fatalities that have been reported have been due to reactions of the anaphylactic type. Since such reactions are only known to occur in persons sensitised by previous exposure to the antibiotic, they were exceedingly rare during the first few years of penicillin therapy.

It is difficult to make an accurate assessment of the frequency with which anaphylactic reactions occur, as only a small proportion of them are reported in the literature, even if they end fatally. The greatest number of reports comes from the United States of America, which consumes about three-fifths of the total world production of penicillin, and a survey described by Welch et al. in 1957[a] throws some light on the frequency of anaphylactic reactions in that country. In the 827 hospitals covered by the survey, there were 2500 penicillin reactions during the three years 1954-56. Of these, about 793 were of the anaphylactic type and 72 were fatal. Since the three-year survey covered one-third of the hospitals in the United States, these figures can be considered to correspond to the annual rates for the whole country. During the same period about 200 tons of penicillin a year were used for human medicine in the United States. This is enough to provide some 300 million injections, so that there were about 25 anaphylactic reactions and 2-3 deaths for every 10 million injections given. An estimate for Denmark, based on statistics for the years 1951-55, also arrived at a figure of 3 deaths per 10 million injections.

The importance of previous exposure to penicillin is exemplified by the fact that in the mass campaigns against the treponematoses among populations not previously exposed to penicillin, several million people have received penicillin injections without anaphylactic reactions having been reported. On the other hand, in Taiwan, where the consumption of penicillin is very heavy (nearly 500000 units per person per year), there were 74 anaphylactic reactions, including 12 deaths, between 1951 and 1955. For the same reason, anaphylactic reactions are more common in urban than in rural areas. Occasionally, a negative history of previous penicillin administration is obtained, but this can be misleading, as local applications, inhalations, etc. are not always remembered. Serious and even fatal reactions have repeatedly been reported in patients who have previously used penicillin tablets, lozenges, spray, antral instillations, and ointment. Exceedingly small quantities of penicillin seem capable of causing sensitisation in susceptible persons. In one of the fatal cases reported from Taiwan, sensitisation appeared to have been induced by a single tablet of 50000 units taken one year previously. Most of the patients, however, had previously been exposed to amounts between 0·6 and 4·8 mega-units.

The time interval between the administration of penicillin causing the anaphylactic reaction and the last previous administration can vary widely. Intervals as short as ten days and as long as eight years have been reported. The length of the interval does not appear to bear any constant relation to the severity of the reaction, which probably depends more on individual factors. It should be noted that in a sensitised patient the first subsequent administration of penicillin will bring on a reaction. Consequently, if a patient is given penicillin and no reaction occurs, it can be assumed that further administrations in the same series will be without danger, provided that the intervals between the doses are not longer than four days. From this it follows that short courses of treatment with high single dose are preferable to longer courses with smaller doses.

The types of penicillin preparation used does not appear to be important. Skin tests indicate that the common penicillin preparations are immunologically equivalent, and this is supported by clinical experience. Although most of the reactions reported have occurred with procaine-penicillin preparations, this merely reflects the fact that it is this type of preparation which is generally used; many authors have stated that procaine is unlikely to induce sensitivity, and in two cases in which aqueous penicillin was substituted because of suspected sensitivity to the procaine component, the patients died.

It seems, then, that the way in which a sensitised person will react to a subsequent exposure to penicillin is dependent largely on personal, constitutional factors. Little is known as yet about the nature of these personal factors. The reactions occur most commonly in adults between 20 and 49 years of age, but they appear to be equally distributed between the two sexes. They are rare in children under 12 years old, and the frequency decreases rapidly with increasing age after 50. Children treated with penicillin are, of course, less likely to have had a previous exposure to the drug than older persons, but there is also some evidence that they are less easily sensitised. In the older age-groups, the consumption of penicillin is presumably lower than in younger adults, but it may also be that desensitisation takes place in the course of time.

It does seem well established, however, that patients with a personal or family history of allergy are more easily sensitised than others, and that they react more severely to subsequent treatment; great caution should therefore be observed if re-treatment with penicillin is indicated in such patients.

Changes in the Microbial Flora

Of the various changes in the microbial flora brought about by the administration of penicillin, the one which has caused most concern so far is the development of resistance in staphylococci. Some organisms, such as *Escherichia coli*, show a natural resistance to penicillin, but acquired resistance has not presented a problem as yet in other than staphylococcal infections. In some studies, 50-70 per cent of hospital patients have been found to carry antibiotic-resistant staphylococci, the type of resistance depending upon the antibiotic in current favour. Cases of complete resistance to all antibiotics have been reported. Resistant staphylococci can cause superinfection in a patient being treated with the antibiotic, or cross-infection in other patients in the same

[a] Welch, H. *et al.*—*Antibiot. Med.*, **4**: 800, 1957.

ward. The main problem has been created by staphylococcal pneumonias and urinary and wound infections. Staphylococcal enteritis may sometimes occur as the result of superinfection of the bowel with penicillin-resistant organisms from the mouth or throat, but this complication is more common with orally administered antibiotics, such as the tetracyclines.

The resistant organisms are spread by dust from clothing and bedclothes, or by hospital personnel who acquire resistant strains from penicillin-treated patients. It has been shown that the proportion of nasal carriers among student nurses entering hospital may increase in one month from around 5 per cent to as much as 50 per cent. Precautions which should be taken in hospital to prevent cross-infection include such measures as isolation of staphylococcal cases and carriers, barrier nursing, and the wearing of masks by hospital staff. The development of resistant strains can be minimised by restricting the use of penicillin—and, indeed, of all antibiotics—to cases where they are absolutely necessary, and by giving sufficiently large doses at the beginning of treatment to kill the organisms rapidly.

Fortunately, the acquired resistance of the staphylococci is usually lost again fairly rapidly when they are diluted with non-resistant strains in the general population, and, outside hospital, resistance has so far not been encountered on a serious scale. It has recently been reported, however, that the percentage of nasal carriers of staphylococci among blood donors in Australia was twice as high in 1955 as in 1954, and the situation must therefore be watched carefully.

Among organisms other than staphylococci which may cause superinfection during penicillin therapy, as a result either of resistance or of decreased competition, mention may be made of *Escherichia coli* and of paracolon and proteus bacilli. Overgrowth with *Candida albicans* is more common after the orally administered tetracycline antibiotics than after parenterally administered penicillin, but cases of moniliasis have been reported, usually in the mouth. It has been suggested that the "broad spectrum" approach, in which penicillin is combined with other antibiotics, may actually increase the risk of superinfection by all types of organism.

In the treatment of syphilis with penicillin, a Herxheimer type of reaction frequently occurs. This phenomenon, also known as "therapeutic shock", is generally attributed to the release of noxious substances by the spirochaetes killed by the drug. In early acquired syphilis, it occurs in 80-90 per cent of patients. The reaction is usually mild in such cases, and there is no need to discontinue therapy, but severe and even fatal reactions may occur in late neurosyphilis, cardiovascular syphilis, and gummatous syphilis, as well as in debilitated babies.

Like other antibiotics, penicillin may some-times cause deficiency syndromes due to disturbance of the metabolic processes in the gastro-intestinal tract and interference with the production of the vitamin B Complex and vitamin K. It is believed that the symptoms, which include black tongue and lesions of the oral mucosae, are due in part to an overgrowth of pathogenic flora.

Precautionary Measures

The frequency of severe reactions to penicillin can be greatly reduced by taking a number of simple precautions, and it should be possible to eliminate fatalities almost entirely if the physician giving the injection always has at hand the necessary drugs to deal with an emergency. Before administering penicillin, the patient should be questioned carefully regarding previous exposure to the drug and any manifestations of an allergic diathesis in himself or his family. Full dttails of previous treatment should be noted and if a reaction occurred, renewed treatment with penicillin should be regarded as contraindicated. Even mild reactions, such as itching, a tingling feeling in the tongue or fingers, a peculiar taste in the mouth, dizziness, or slight fever, should be taken as an indication of the probable presence of anaphylactic sensitivity, precluding re-exposure to any type of penicillin preparation. An exception is the delayed type of serum-sickness-like reaction, which does not appear to be a usual precursor of anaphylaxis.

There is clear evidence that patients with a history of asthma, hay fever, rhinitis, or other allergic diseases react more easily and more severely than others. Bronchial asthma, in particular, appears to increase considerably the risk of severe anaphylactic reactions in penicillin-sensitized patients, and an asthmatic patient should not be treated with penicillin if this can possibly be avoided. As an additional precaution, a skin test can be performed, but patch tests appear to be of little value, except in contact dermatitis. On the other hand, the immediate intradermal test, although usually positive in cases of amphylaxis, may itself produce a severe anaphylactic reaction. Moreover, a negative test does not necessarily exclude penicillin sensitivity. Routine skin testing is probably not a practical procedure for all patients, but might be considered before treatment of persons who routinely handle penicillin.

Penicillin should be injected slowly by the intramuscular route, and the patient watched carefully during the injection for any signs of a reaction. Some authors favour giving the injection in one of the upper arms rather than in the buttock, so that a tourniquet can be applied if a reaction commences, but the efficacy of this procedure is doubtful. If possible, the patient should be allowed to remain in the consulting room for about 15 minutes after the injection. Adrenaline (1 :1000) should be to hand for immediate injection if anaphylactic symptoms appear; if subcutaneous injection is ineffective, it may be given intravenously, or even directly into the heart. An antihistamine, such as diphenhydramine hydrochloride or tripelennamine, should also be given, and aminophyllin has been recommended by some authors in cases of respiratory distress. These drugs, together with the appropriate syringes, should always be carried by a doctor giving injections of penicillin. In clinics oxygen should also be available, as well as a drip-infusion set; continuous drip-infusion of l-arterenol or plasma has been recommended in cases of prolonged depression of the blood-pressure. Intravenous cortisone or intramuscular ACTH is also indicated in protracted cases. Recently it has been shown that penicillinase, an enzyme that in-

activates penicillin, is capable of clearing the circulating antibodies from the blood. Given simultaneously, 5000 units will completely inactivate 100000 units of crystalline penicillin. This enzyme may prove of great value in the future for arresting anaphylactic shock. The recommended dose is 800000 units intravenously, followed by 800000 units intramuscularly.

Conclusions

From the data at present available, it may be concluded that the inherent toxicity of penicillin is so low as to be of negligible importance, but that discretion in its use is called for on two grounds: allergic or anaphylactic reactions may occur in previously sensitised persons, and there is a risk of superinfection or cross-infection with penicillin-resistant organisms, especially staphylococci. The increasing frequency of untoward reactions to penicillin is attributable to the increasing use of the drug, and especially to its uncontrolled, indiscriminate use. Since sensitivity reactions almost always occur in patients previously exposed to the drug, it should not be given for minor ailments or for diseases in which its efficacy is doubtful or not superior to that of other drugs. If it is reserved for cases in which its use is fully justified, the chances of repeated exposures will be reduced to a minimum. Courses should be kept as short as possible by giving high doses. This will also help to diminish the likelihood of creating resistant strains. The risks of cross-infection in hospital can be minimised by suitable hygienic measures.

Another fact that emerges clear from this survey is that, although minor allergic reactions may occur in up to 1-2 per cent of patients receiving penicillin, severe, anaphylactic reactions are exceedingly rare in comparison with the enormous quantities of penicillin used. It has been estimated that there are probably not more than 25 such reactions for every 10 million injections given and that only about three of these prove fatal. Moreover, it is interesting to note that, of the 12 fatalities reported from Taiwan, 10 were in patients treated by private practitioners and the other two deaths occurred after penicillin injections given in a drug store and by a herb doctor. Only one reaction was reported from a hospital. There is reason to believe, therefore, that severe reactions are much less likely to occur if proper precautions are observed.

Finally, the reactions that penicillin may cause must be set against the great powers which it possesses for the control of communicable diseases. When the entire picture is viewed in perspective, it is seen that penicillin does indeed do its task "with the utmost efficiency and negligible harm", and that there is ample justification for continuing to regard penicillin as "the queen of drugs". But, not unlike many queens of the past, she may retaliate on those who do not respect her powers. There is need for education of doctors, nurses and the general public concerning the proper use of penicillin and the risk of sensitisation; and the sale of penicillin should be restricted by the introduction of regulations regarding prescription. In mass campaigns, similar tactics should be adopted to those employed to overcome the problem of insect-borne diseases: the work should be intensified so that the value of penicillin can be exploited to the full before, or in case, sensitivity or microbial resistance makes its appearance.—*Chron. Wld. Hlth. Org.*, **12**: 295, 1958.

A NEW SERVANT OF MEDICINE

RITCHIE CALDER

Tritium is a portentous word. It was introduced to the awareness of the world as a component of the hydrogen bomb. For peaceful purposes it is the element which, in combination with deuterium, will release 17,000,000 electron volts of energy in a successful fusion process. For such purposes tritium is man-made but through all the aeons of time Nature (although we did not know it until recently) has been manufacturing it by the bombardment of the elements of our upper atmosphere by cosmic rays from outer space. Tritium is radioactive hydrogen.

Mild and Inquisitive

One of the interesting disclosures at the Second International Conference on the Peaceful Uses of Atomic Energy in Geneva last summer, was how this radioisotope, capable of releasing such pent-up power, is one of the mildest, most docile and most inquisitive servants of the biologists and the doctors. It has a half-life of twelve and a half years, that is to say, it loses half its radioactivity in that period. It releases "soft beta rays", that is to say, that it releases neutrons from its nucleus. And, of course, being hydrogen, it combines with oxygen to form water and can be absorbed, as water is, in the tissues and the cells of the body. Once it is so lodged and the cellular tissue is sectioned and placed on a photographic plate, the tritium will reveal itself as clearly defined image will photograph itself.

A great many papers on tritium were submitted, showing the wide possibilities of this new "tool" which has become available in adequate amounts and at fairly reasonable cost. One example was the study, with tritium, of the routes travelled by insulin in the body. The insulin was recrystallised, to include the radioactive tritium, and was found to retain its full biological potency. When injected into the veins of rats it could be traced to the liver, to the pituitary gland at the base of the brain and to the adrenal glands on the kidneys. This route marking was extremely interesting since all three glands are involved in the regulation of the body chemistry dealing with sugars and starches.

Secret of Life

Even more fundamental is the access which tritium has given to the cells by incorporating it into thymidine —a precursor of desoxyribonucleic acid (DNA)—it is possible to study the synthesis of this acid, which holds the secret of life, because it is a chemical which reproduces itself. It is possible, having labelled DNA in this way, to study chromosome duplication, within a single cell. It has been used in animals and man to study the mechanism of cell production, because it is incorporated only in cells which are actively multiplying.

Thus tritium, harmless in any concentrations ever likely to be used in research or in medicine, will probably be as useful as C-14, radioactive carbon, in the study of the metabolic processes. Carbon is the basis of all organic chemistry. Its radioactive form, produced in nuclear reactors, has a half-life of 5,000 years—long enough for the research worker to complete his experiments! It can be used to show, in the living processes, how sugars, starches, fats and proteins are built up and how they are re-employed in the body. For example, glucose compounded with C-14 will first mix with the glucose of the blood and then it must enter the cells. It is possible to show how it penetrates the cell membrane and how the glucose is broken up and its elements dispensed to create new chemicals to feed, to build or to replace the tissues.

At any one of the stages it can be detected, by an ingenious but essentially simple device—chromatography. This recalls the days before ball-point pens and before blot-proof ink when a blob of ink or blotting paper would spread as a series of haloes, as the pigments in the ink separated out at different rates. The same thing happens with the subtle chemicals of the body. If they are allowed to drip down a sheet of filter paper the constituent chemicals will separate and reveal themselves at different points. If radioactive carbon has been added and has selectively combined with one of the constituents, the appropriate "blot" will be radioactive. So it is possible, with detectors, to determine all the intermediate stages of what has hitherto been an invisible process.

Ancient Fusing Reactor

In the same way, as revealed at the Conference, Carbon-14 can explain an already successful fusion device in the service of Man. For the sun is a fusion reactor and the energy which it releases is picked up by plants and converted into the foods we eat. This process called "photosynthesis" may, in the long run, be more important than the release of fusion energy for industry because it will, fundamentally, increase our knowledge of the foods on which our multiplying population depends for its survival. In the extreme, it could mean that we would make our foods from the elements without dependence on soil or even on the plants.

At the first "Peaceful Uses" conference, the scientists were able to show what was virtually the flow sheet, or ground plan, of the "chemical factory" by which the plant converts the energy of the sun into sugars and starches. The technique is to grow the plants in an atmosphere which contains radioactive carbon-dioxide: the radioactive carbon, like a night watchman clocking in at his check points, will record each stage. At the second Conference we heard of the extension of this by adding Oxygen-18 and radioactive hydrogen (tritium). Oxygen-18 is not itself radioactive but it can be made so by being bombarded with protons when it becomes Fluorine-18 which is radioactive and easy to identify and to measure. Thus the three major elements of photosynthesis are now available.

Beyond the photosynthetic carbon cycle is what is known as the Krebs Cycle, which leads on to the processes which produce fat and protein. This too can be followed by radioisotopes.

Labelling Cells

Every natural element now has its useful man-made isotope. At Geneva we heard accounts of how radioactive phosphorus had been used to "label" red blood cells and to establish the life-span of human cells at between 110 and 130 days. This has had an immediate value in blood transfusion because, after blood has been stored for some time the cells may appear normal under the microscope and yet be rapidly destroyed when they are transfused into a patient. Evidence was produced that whole blood can be safely stored in acid-citrate-dextrose solution, for periods up to 21 days and that survival can be prolonged by the addition of inosine or adenosine.

There were disquieting disclosures about radioactive elements in the skeleton—"disquieting" because of radiostrontium. This element did not exist in nature but is produced in nuclear reactors and by the explosion of H-bombs. It is a "cousin" of calcium and, if it gets into the body, it will, like calcium, go into the formation of bone, particularly in children whose bones are growing. It was shown by researches that the radiostrontium lodged not only deep in the bone itself but in the heart of the bone-crystals where it could not be reached by any chemical which might otherwise have removed it.

Apart from this sombre warning, the work on bones has revealed much that was hitherto unknown. For instance, it has shown that bone is a very dynamic structure, not inactive tissue. One paper described the distribution of radiocalcium in the tissues and skeleton of a mouse. The injected animals were then killed at intervals of from ten seconds to ten minutes by deep-freezing them in liquid hydrogen. This instantly arrested the process and the sections placed on a photographic plate produced images which were, in effect, a slow motion picture of the progress of the calcium. At ten seconds the calcium was chiefly in the blood but by 40 seconds it was beginning to concentrate in the bone.

The shades of Vesalius, Harvey, Claude Bernard and Pavlov, if they had joined the 6,000 participants at this Conference, would have heard how their researches had become radioactive. Here, for Vesalius, was the account of how the "fabric" of the body was being charted not post-mortem but as a living process. Harvey would have heard how by breathing radioactive gases, the scientists had obtained new information about the left side of the heart, the circulatory system and the lungs. Bernard would have discovered how the work which he initiated on the endocrine glands was becoming audible and visible with the use of Geiger counters, scintillometers and radioautographs. And Pavlov would have heard his compatriots describing how to locate tumours in the brain and study reflexes in the nervous system.

Mapping the Liver

The living liver has been mapped by radioactive forms of gold, iodine and labelled rose-bengal and has appeared as a scintillating picture. Studies of the use

of radioisotopes in the brains of animal and man have suggested possible techniques for the treatment of Parkinson's disease. Methods for locating brain tumours and lesions which have hitherto not been very successful, are being improved by the search for elements which (like boron, the first to be tried) will concentrate in the diseased brain tissue and when irradiated by an outside source will release atomic particles. Detectors will pick up these rays and, like direction finders, will fix the bearing of the lesion.

Hundreds of papers on the medical and biological uses of radioisotopes were submitted to the Conference from all over the world. Apart from the use of radioiodine which concentrates in the thyroid gland and by internal radiation can treat diseased tissue, isotopes-by-absorption have not yet proved a very effective treatment. The idea of using chemicals with affinities to specific parts of the body as a means of internal treatment is an attractive one but much more knowledge is needed to give precision. On the other hand the direct injection of isotopes into the body tissues and cavities has proved useful in diagnosis and in treatment. The most effective procedure of treatment by radioisotopes, however, is still teletherapy—the use of radioactive cobalt and radiocesium as external sources of beams, as in the case of x-rays and radium.

Whole Body Accessible

"Each new diagnostic procedure of radioisotopes," said Professor R. H. Chamberlain of the University of Pennsylvania, in a key-note speech to the Conference, "adds dimensions to our knowledge of the intricacies of the human body. Practically all the organs and parts of the body are now accessible to study."

But he warned his colleagues against the "glamour" of radioisotopes and atomic energy. Doctors must not be dazzled by novelty. They could be misled by inexperience into dangers for their patients or diverted from conventional methods which were often better. (WHO Release, SEAR 573).

NOTES AND NEWS

New W.H.O. Appointment

Dr. Lucien Bernard, a French public health expert, has been appointed Director of Health Services in WHO's South East Asia Regional Office in New Delhi. His duties will include advising the Regional Director on the technical aspects of all health activities in the Region and in directing the planning and execution of general and special health surveys. He will also, at the request of Member Governments, provide consultative services to assist in the implementation of Government health programmes.

Dr. Bernard, who has occupied several important positions in the health services of his country, was, prior to his assignment with WHO, Assistant to the Director-General of Health, Ministry of Public Health, Paris. After acquiring his M.D. and Diploma of Public Health from the Faculty of Medicine, Paris, Dr. Bernard had specialised training in microbiology at the Pasteur Institute, Paris. He has published about 50 studies relating to microbiology, communicable disease control, public health administration and international health. He has attended most of the sessions of the World Health Assembly and the European Regional Committee as a member of the French delegation and has been a member of the WHO Executive Board.

International Congress of Radiology

The Ninth International Congress of Radiology will be held in Munich from July 23 to July 30, 1959. The Patron of the Congress is President Prof. Dr. Theodor Heuss. The General President is Prof. Dr. H. Holthausen, and Prof. Dr. Boris Rayewsky is the president. More than a thousand specialists are expected to attend. Further information may be had from Prof. Dr. H. von Braunbehrens, General Secretary, Congress Secretariat, Reitmorstrasse 29, Munich 22, Germany.

The Brackenbury Prize, 1960

The Council of the British Medical Association is prepared to consider the award of the Brackenbury Prize in the year 1960. The Prize, of approximately 100 in value, will be awarded at the discretion of the Council for the best contribution on "The Problem of the Ageing Population". Any member of the British Medical Association is eligible to compete. The work submitted must include personal observations and experience. A high order of excellence will be required and regard will be paid to literary form as well as to the practical importance of the contributions. No report or study that has previously been published in the medical press or elsewhere will be considered eligible for the Prize. Each entry, which must be typewritten or printed in the English language, should be unsigned, but accompanied by a note of the candidate's name and address. It is suggested that reports should be of the order of 10,000 words.

Enquiries relative to the Prize should be addressed to the Secretary.

Raptakos Medical Research Board Fellowships

The Raptakos Medical Research Board fellowships for the year 1959 have been awarded to the following candidates for research work on subjects mentioned against their respective names :

Production of Antifungal Antibiotics from a Streptomyces Species by (Miss) B. N. Uma, Indian Institute of Science, Bangalore; Absorption of Haematinics by Prafulla J. Dave, Haematology Clinic, J. J. Group of Hospitals, Bombay; Mode of Action of Vitamin D by G. V. G. Krishna Rao, Nutrition Research Laboratories, Coonoor; Biochemical and Immunological Studies of Semen and Cervical Mucus by Anil R. Seth, Indian Cancer Research Centre, Bombay; Studies on the Development of Bone Marrow Hypoplasia with special reference to Immunologic Mechanism by K. C. Das, Institute of Post-Graduate Medical Education and Research, Calcutta.

III Annual Conference of the Indian Public Health Association

Inaugurating the third annual conference of the Indian Public Health Association in Calcutta on 27-12-58, Dr. B. C. Roy said that those responsible for health education in India must be aware of the way people lived in villages. The conference, held at the All-India Institute of Hygiene and Public Health, was presided over by Dr. B. C. Das Gupta.

Dr. Roy said that if he had the choice he would recommend about six months' compulsory training for students who wanted to obtain a degree in medicine. The majority of Indians lived in villages. It was necessary that social workers should not only know their health problems but also their minds.

The mayor, Dr. Triguna Sen, who was the chairman of the reception committee, referred to Calcutta's sanitation and water supply problems which had been largely aggravated by the influx of refugees and people from neighbouring States. Overpopulation, he said, had upset the city's sanitary arrangements. Assistance from the Union and State Government was imperative "to save the city" from becoming an even more unhealthy place.

Dr. Das Gupta, the Association's President, criticised the shortfall in expenditure on health under the First Plan. The problem of non-availability of trained personnel could be solved if language or customs were not considered insuperable barriers to employment and service.

Although scientific investigation for better and effective control of tuberculosis was being made, scant attention had been paid to the task of after-care and rehabilitation of T.B. patients. The control of leprosy, cholera and smallpox, he suggested, should be taken up by the Union Government on a national scale.

Referring to virus diseases like poliomyelitis and encephalitis he said that each State Directorate should have a properly trained epidemiologist. There should be a central laboratory in each state which should be provided with a virus unit.

Dr. Das Gupta said that a mid-day meal in schools was necessary for children's health. More attention should be given to the mentally disordered. A medical section must be attached to each factory for the care of industrial workers.

M. Ct. M. Chettiar Hospital—Kerala Governor Inaugurates

The M. Ct. M. Chettiar Memorial Hospital in Rayonpuram was declared open by Dr. B. Ramakrishna Rao, Governor of Kerala on December 21, 1958.

The hospital, built at an estimated cost of rupees five lakhs, out of which a sum of rupees two lakhs has been donated by Messrs. M. Ct. Muthiah and Pethachi, sons of the late Mr. Chidambaram Chettiar, is well furnished with modern equipment. A noteworthy feature is that the maternity and the operation theatres attached to it are air-conditioned.

It will not only serve the needs of the families of 1,500 employees working in the Travancore Rayon Factory, but also provide medical relief to the people of the locality.

New Office-Bearers of I.M.A.

The following office-bearers of the Indian Medical Association have been elected for 1958-59 at the 35th All-India Medical Conference held at Cuttack on December 26-28, 1958.

President—Dr. C. O. Karunakaran of Trivandrum; Vice-Presidents: Dr. P. N. Sinha of Patna, Dr. A. P. Shukla of Ahmedabad, Dr. V. P. Vasudevan of Coimbatore; Hony. General Secretary: Dr. A. P. Mittra of New Delhi; Jt. Secretaries: Dr. Vedprakash of New Delhi, Dr. P. C. Bhatla of Delhi and Dr. Salil Dutt of Calcutta; Hony. Asst. Secretaries: Dr. D. S. Mehra of Delhi, Dr. P. Krishnamoorty of Trivandrum and Dr. R. A. Bhagwat of Indore; Hony. Treasurer: Dr. R. C. Goulatia of New Delhi; Hony. Editor of Journal: Dr. P. K. Guha of Calcutta; Assistant Editors: Dr. H. S. Chakravarty and Dr. J. B. Chatterji of Calcutta; Secretary of Journal: Dr. Ranajit Sinha; Members Journal Committee: Dr. D. C. Lahiri, Dr. P. C. Sengupta, Dr. B. P. Trivedi, Dr. Souren Sengupta and Dr. A. N. Roy of Calcutta.

REVIEWS

The Surgeon's Tale—By Robert C. Richardson. Published 1958 by George Allen and Unwin Ltd., Ruskin House, 40 Museum Street, London, W.C. 1. Board bound with jacket, 8¼" x 5¼", 256 pages; price 25s. net.

In great contrast to things existing even two centuries ago, it is well known that the art and science of surgery has advanced with rapid strides since the discovery of anaesthesia over a hundred years ago. Specially big and astounding advancements in this field have been achieved during and after the second world war. This book gives a narrative of this absorbing subject in a manner which is not only descriptive but at the same time instructive and impressive—an achievement difficult to obtain in a technical book of this type. The author must have had to hunt through a huge lot of documents and information, but it must be said that the end-result of his labours, this book will certainly please the readers in appreciating this story of modern surgery.

Woman's Change of Life—By Isabel Hutton, C.B.E., M.D. Published August 1958 by William Heinemann Medical Books Ltd., 99 Great Russell Street, London W.C. 1. Board bound, 5" x 7½", 124 pages; price 6s. net.

The climacteric or "change of life" is a phase troubled with various physical and mental disturbances, through which women of advancing age have often to pass. The patients themselves, and sometimes their doctors as well, are faced with difficulties and not unoften perplexed at the intricate problems that sometimes crop up. This volume is the outcome of many years of observation of women who were passing through the "change

of life". In this small handy book the author has treated the subject systematically and frankly in all its aspects so that nothing remains mysterious or uncertain. Directions are given for the maintenance of health and efficiency, and a simple routine is outlined for those who are temporarily suffering from fatigue or overstrain. Physicians will find this book suitable to recommend to their patients passing through the "change of life", for the maintenance of health and also to assist their own medical treatment. The advice to husbands should help to reduce the tension which endangers some marriages when "middle age" has been reached by the wife with its attendant physical and mental disturbances.

Nagarjun, Vol. 1, No. 12, August 1958—Edited by L. K. Pandeya, from 58-D, New Alipore, Calcutta 33. Paper cover, 9¼" × 7¼", 107 pages; single copy Re. 1·50 nP., annual subscription Rs. 15/-.

This issue is the concluding one of the first volume of this interesting magazine which seems to have maintained a fairly good standard of presentation for its readers—in paper, printing, get-up and the general set-up of articles, not all of which however deal with the indigenous Indian system of the healing art. There are two articles by non-Indians, one from Germany. A large number of pictorial representations and messages have made this anniversary issue pleasant reading, apart from the contents of the articles of the usual type. Articles of three running series should keep the readers anxious for the next instalments in subsequent issues.

First Aid Illustrated—By the late H. T. H. Butt, M.D. (CANTAB.). New edition revised by Dr. A. Frow, assisted by Harold Jowitt, C.M.G., B.A., M.ED. Standard edition, 1938, new impression, 1957; published by Longmans Green & Co., Ltd., London; available from Orient Longmans Private Ltd., 17 Chittaranjan Avenue, Calcutta 13. Paper cover, 94 pages.

This is an excellent book on first aid, its main attraction being the total of 131 illustrations which have enabled the subject to be dealt with, by using a minimum of written language. This has naturally been a well-planned method of approach, which must have been found particularly suitable for a territory where the English language is not in extensive use. Although originally planned and intended for use in African territories, this book will be found very useful for first aid work, both for the actual workers and the instructors, in any place where the English language is somewhat understood; the illustrations will help to do the rest.

OBITUARY

Dr. Hari Krishna Das

Dr. Hari Krishna Das was born in 1875 at Barpeta in Assam. He passed the Entrance Examination from Hare School and F.A. Examination from the Presidency College, Calcutta. He next joined the Calcutta Medical College from which he passed out in the year 1900. He joined Government Service as Assistant Surgeon soon after this and was appointed as the teacher of surgery in the Berry White Medical School at Dibrugarh where he served for more than 14 years. He took keen interest in all the activities of the students, not only in the sphere of studies but also in the field of sports. He was an excellent cricket player and always joined the students in their games. He was very fond of his students and was a friend, philosopher and guide to all of them. He was transferred to Nowgong as a Civil Surgeon in 1925 where he served till 1927, when he retired prematurely to devote his entire time to the service of his country.

DR. HARI KRISHNA DAS

He was well known for his skill in surgery and after retiring he started a Surgery himself and rendered surgical assistance to many a poor patient.

During 1930-32 Congress movement, he helped the Congress with all his resources. As a result, the Government suspended his pension and it was not until the Congress Government was installed in Assam that his pension was restored. But Dr. Das donated the entire amount to a trust fund for constructive works of the Congress and he never touched his pension during his life-time.

He was imprisoned in August 1942 with all the other Congress leaders and was released in December 1944 to attend to his wife who was lying seriously ill and who died in January 1945. Since then, he devoted his entire life and fortune to silent constructive works.

He was held in the highest esteem by all his colleagues and was elected as the first president of the Assam Branch of the Indian Medical Association in 1947. He was greatly interested in all the activities of the association and regularly attended all the conferences until his health failed.

He led an active healthy life till June 1958 when he had an attack of heart block. He recovered partially from this attack but the second attack came on the 9th October and he passed away on the 2nd December 1958 at the age of 83 years.

SUPPLEMENT
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BRANCH NOTES

AKOLA BRANCH—The branch has arranged a Refresher Course for general practitioners at Akola on 24th and 25th January 1959. There will be 6 lectures a day. The fees for admission are Rs. 17/- for registered medical practitioners and Rs. 10/- for medical students.

ALIGARH BRANCH—During the year 1957-58, seven business meetings and 3 clinical meetings were held. The following doctors visited the branch during the year, (a) Dr. J. Rohtagi, Dy. Minister of Health, U.P., on 30-11-58, (b) Dr. A. L. Mathews of Michigan (U.S.A.) spoke on "The Surgical Treatment of Concomitant Squint", (c) Dr. D. P. Srivastava, Add. Director of Medical and Health Services, U.P., delivered a lecture on the medical and health aspects of the II Five Year Plan. Office-bearers for 1958-59 were elected with Dr. B. R. Shukla as president, Dr. I. H. Ansari as vice-president, Dr. (Capt.) Hafiz-Ur-Rahman as secretary and Dr. Y. Dayal as joint secretary.

ANAMALLAI BRANCH—A special meeting was held on 9-8-58 with Dr. M. K. R. Jayachandran in the chair. The members condoled the death of Dr. S. Dorai Raj, the founder member of the branch. A farewell party was arranged also, on the occasion of Dr. Krishnamurthy's departure from Anamallai. Letters and circulars received were discussed.

A meeting was held on 30-8-58, with Dr. M. K. R. Jayachandran in the chair. Dr. M. James gave a talk on Treatment of Trauma with special reference to the injuries of Tea Plantations and Tea Factory.

A clinical meeting was held on 20-11-58. Dr. M. K. R. Jayachandran presided. The chief guest was Dr. M. V. Krishnamurthy, D.M.O., Coimbatore, who spoke on Myocardial Infarctions. After the speech, the members discussed the subject. A resolution from the chair was moved, seeking to make representations to the Government of Madras for amending the Madras Plantation Act, 1955 in such a way that the Director of Medical Services and not any lay man can inspect the medical department of the Plantations.

ANDUL BRANCH—The annual general meeting was held on 30-11-58 with Dr. S. N. Das in the chair. Seventeen members were present. Office-bearers for 1958-59 were elected with Dr. S. N. Das as president, and Dr. J. K. Ghosh as secretary.

BHAVNAGAR BRANCH—The annual meeting of the branch was held and office-bearers for 1958-59 were elected with Dr. K. R. Doshi as president and Dr. K. A. Kamdar and Dr. K. R. Patel as hony. secretaries. A lecture on Acute Abdominal Emergencies was given by Dr. H. B. Bhatt on 3-11-58. Dr. M. N. Kailas, Dy. Minister of Health, Bombay State, visited the branch.

BIJAPUR BRANCH—The annual general body meeting of the branch was held on 1-11-58. Office-bearers for 1958-59 were elected with Dr. G. N. Mangalvedhekar as president, Dr. M. D. Mahindrakar as hony. secretary. The annual report for 1957-58 shows that 3 general body meetings, 3 clinical meetings, 2 executive meetings, 5 building committee meetings, 1 farewell meeting, 1 welcome meeting and 2 condolence meetings were held during the year. The Health of Minister of Mysore State and Dr. V. G. Watwe addressed the members on interesting subjects during the year.

BIJNOR BRANCH—The 2nd Bijnor District Medical Conference was held on 18-11-58. Dr. J. L. Rohatgi inaugurated the conference and Dr. S. S. Misra, president of U.P. State Branch, presided. Dr. H. N. Shivapuri also attended the conference on invitation. Dr. Kar, the president of the branch, welcomed the guests and the medical men of the district who came to attend the conference. Dr. Rohatgi in his address discussed the present day position of medical men and the I.M.A. Dr. Misra in his presidential address stressed upon unity of strength and action and Dr. Shivapuri, inter alia, laid emphasis on the organisation of T.B. Seal Campaign and explained its importance. The paper on Quackery suggested some measures to suppress it viz. (1) All qualified medical men should be registered with the Medical Council, (2) Medical Act should be amended to make it more powerful, (3) The Act to be more strictly enforced, (4) Banning of use of scientific medicine by persons not qualified in scientific medicine, (5) Strict implementation of Drugs Act and Control on dispensing chemists, (6) Educating the public regarding the necessity of encouraging only qualified medical practitioner.

COIMBATORE BRANCH—A meeting of the branch was held on 2-8-58 in the premises of the K. N. Memorial Hospital. Eighty members were present. Dr. T. V. Sivanandam presided. Dr. A. C. Devaraj read a paper on X-rays in Diagnosis and Treatment. Dr. Devaraj thanked the Dean of the Hospital for having invited the association to the hospital.

A meeting of the branch was held on 30-8-58. Fifty members were present. Dr. D. Sundareswaran presided. Dr. P. S. Venkatachalam of Nutrition Research Laboratories, Coonoor, spoke on the Management of Body Weight and its significance.

A combined meeting of the Coimbatore and the Palghat branches were held on 28-9-58 at Palghat. Twenty members were present. Dr. C. H. Venkateswaran presided. Dr. T. K. Raman spoke on the Management of Heart Diseases. After the lecture, the subject was discussed by the members.

CUTTACK BRANCH—A meeting of the branch was held on 15-11-58 with Dr. K. N. Misra in the chair. In the scientific session, Dr. D. R. Patnaik spoke on Obstetrical Emergencies in General Practice.

ERODE BRANCH—The annual meeting of the branch was held on 6-9-58 with Dr. T. S. Bhaskaran in the chair. In the scientific session, Dr. N. Subramaniam of Government Headquarters Hospital, Coimbatore, spoke on Prolonged and Perplexing Fevers. In the surgical

session, Dr. D. S. C. Devadhar spoke on New Surgical Approach to Treatment of Cirrhosis of the Liver. Dr. K. A. Kalyanam spoke on Some Problems in the Treatment of Peptic Ulcers. Seventy-five doctors were present.

A meeting of the branch was held with Dr. T. S. Bhaskaran in the chair. Office-bearers for 1958-59 were elected with Dr. E. S. Venkatraman as president, Dr. V. Ramalingam as vice-president and Dr. M. N. Shenoy as secretary. Dr. R. Saratchandra spoke on Surgery for general practitioners and how to do it correctly.

FARRUKHABAD AND FATEGARH BRANCH—A meeting of the branch was held on 29-11-58. Dr. Mrs. C. H. Lal presided. Dr. A. J. Faridi of Lucknow spoke on the latest Treatment of T.B. Dr. Mahendra Singh of Sadar Hospital read a paper on Acute Abdomen.

GHATAL BRANCH—At the annual meeting of the branch held on 24-10-58, the members demanded the abolition of 'unethical and unscientific' practice of medicine and putting a stop to unauthorised sale of all poisonous drugs, antibiotics, sulpha drugs etc. by stockists to persons other than registered and qualified practitioners of modern scientific medicine and appealed to the government to enforce the relevant law to stop these practices. The State branch was also requested to move in this matter. They also urged the government to take immediate steps for supply of streptomycin for the treatment of sufferers. The members also condemned the dual policy of the government that medical practitioners of Calcutta to be exempted from permit, whereas rural practitioners, not.

GHUGUDANGA BRANCH—A meeting was held on 30-11-58. Ten members were present. Dr. S. Sarkar presided. Six members volunteered their services to the Dum Dum Airport in case of emergency. Dr. P. B. Dutta showed some adult Coprida Beetle which were passed with the stool of some children. A discussion followed on Intestinal Myasis by Coprida Beetle amongst Children.

GULBARGA BRANCH—A meeting of the branch was held on 30-11-58, Dr. L. R. Deshpande presided. A lecture on Peptic Ulcer was given by Dr. L. R. Despande. Dr. Gajendra and Dr. Sambrain took part in the discussion.

HASSAN BRANCH—A clinical meeting was held on 23-11-58. Dr. N. Leela Bai presided. Twenty members were present. Dr. B. N. Krishnamurthy, D.M.O., Hassan spoke on Leprosy. Dr. M. Nasiruddin, D.H.O., Hassan spoke on the Modern Trend and approach of Medical men to a sick patient touching the social aspect.

HOWRAH BRANCH—The annual report of the branch for 1957-58 shows that during the year, 132 members were on the roll, 2 clinical meetings, 10 executive meetings, 3 special general meetings, 1 annual general meeting and 1 meeting of the ESI Committee were held. Scientific subjects were discussed in the meetings. Efforts are being made for having a land for construction of a building of the branch.

At the meeting held on 16-11-58, office-bearers for 1958-59 were elected with Dr. N. N. Sinha as president, Dr. J. N. Guha, Dr. R. Halder and Dr. M. Moitra as vice-presidents, Dr. D. P. Mukherjea re-elected as hony. secretary, Dr. B. Maitra, Dr. D. Banerjee and Dr. S. N. Chatterjee as hony. joint secretaries.

KARIMNAGAR BRANCH—A clinical meeting was held on 30-11-58. Dr. Mohd. Gulam Nabi presided. One case of sub-clinical Pellagra in a male aged 40 years was demonstrated. Another case of Ovarian Cyst in a female of 40 years successfully operated was also demonstrated. A case of Hookworm infection simulating pellagra which responded to anti-Helminthic treatment was demonstrated by Dr. D. S. Mani, Medical Officer, Poddapalli.

K. G. F. LOCAL BRANCH—A meeting of the branch was held on 28-11-58. Dr. T. K. Dayalu of Bangalore spoke on the impressions of his visit to Moscow. Dr. K. S. George presided. The members also gave a send-off to Dr. D. R. Govinda Rao, proceeding to U. K. for further studies.

KOTHAGUDIUM BRANCH—The annual general body meeting of the branch was held on 28-10-58 with Dr. T. C. Ramachandani as president. Ten members were present. Dr. T. C. Ramchandani was elected the president for 1958-59 and Dr. B. Das, hony. secretary. The annual report and the statement of accounts for 1957-58 were adopted. Dr. Paramasivam gave a talk on Eradication of Malaria. The annual report of the branch for 1957-58 shows that there were 17 members on the roll. Six meetings were held during the year. Clinical subjects were discussed.

KRISHNA DISTRICT BRANCH—The annual conference of the branch was held at Masalipatam on 2-11-58. At the outset the photo of late Dr. K. V. Subba Rao, who was an active member of the branch was unveiled. Office-bearers for 1958-59 were elected with Dr. C. B. Bthirajulu as president, Dr. C. Subba Rao as vice-president, Dr. D. Subba Rao as secretary and Dr. T. T. V. Subrahmanyeswara Rao as joint secretary. In the scientific session, presided over by Dr. M. V. Ramana Murthi, Retd. Director of Medical Services, Andhra State, Dr. M. V. Ramana Murthi spoke on Surgical Practice in Rural Areas, Dr. K. Kodanda Ramaiah of Guntur Medical College spoke on Recent Trend in Diagnosis of Heart Diseases. Dr. K. Atchamamba, M.P., spoke on Psychology in Pregnancy and Dr. P. S. Giri spoke on Family Planning. The annual report of the branch for 1957-58 shows that a building for the branch was opened by Dr. Pattavi Sitaramiah on 29-11-57. The membership decreased during the year due to the formation of Gudivada branch. Six monthly meetings were held during the year and scientific subjects were discussed.

MALEGAON BRANCH—A new branch was opened at Malegaon, Tq. Basim, Dist. Akola, on 1-11-58 with 5 members. The inauguration was done by Dr. K. V. Joglekar. Office-bearers were elected with Dr. D. G. Wadodkar as president and Dr. V. V. Mane as secretary.

MADRAS STATE BRANCH—A meeting of the Council of the State Branch was held on 27-9-58. Fifteen members were present. Dr. K. Rama Ayyar presided. A resolution condoling the death of Dr. S. V. Subbaiah of the Tirunelveli branch was moved from the chair and passed. The hony. secretary reported on the action taken on business arising out of the previous council meeting. Dr. T. V. Sivanandam was declared to have been elected as president for 1958-59 and Dr. A. G. Leelakrishnan of Coimbatore and Dr. S. R. Rajaram of Salem as vice-presidents for 1958-59. The statement of accounts for the months of July and August 1958 and the budget balance were adopted. The secretary was requested to send the report of the sub-committee on the revision and re-casting of the rules of the Madras State Branch to the Central Office for consideration and suggestion. The consideration of the report of the sub-committee regarding the draft rules of the Madras Clinical Journal was adjourned to the next meeting pending communication from the Central office. The question of the improvement of conditions of service of A.M.O.s in Tea Gardens was adjourned to the next meeting. The question of obligation of Estate Medical Officers regarding medico-legal post-mortems was referred to the Director, Medical Services, Madras. A sub-committee was formed to screen candidates applying for internships and residencies for the year 1959. The last date for receipt of application from candidates was fixed as 15-10-58. Regarding the government's memo of 23-9-58 intimating that out of the medical practitioners who cater to the needs of their patients only, only those who charge a separate consultation fee are liable to pay sales tax, it was decided to circulate it to the branches.

The annual report of the Madras State Branch for the year 1957-58 ending 30-9-58, which was presented

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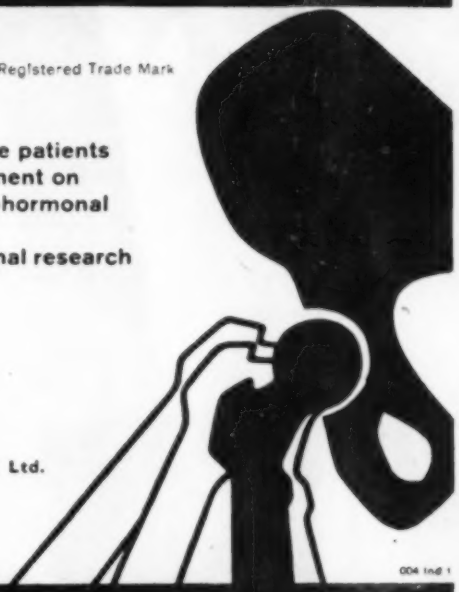

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Vitamin D	500 I.U.	Rutin N.F.	25 mg.
Vitamin B_{12}	1 microgram as present in concentrated extractives from streptomyces fermentation.	Purified Intrinsic Factor Concentrate	0·5 mg.
Thiamine Mononitrate (B_1) U.S.P.	5 mg.	Ferrous Sulfate Exsiccated U.S.P.	33·7 mg.
Riboflavin (B_2) U.S.P.	5 mg.	Potassium Iodide U.S.P.	0·65 mg.
Niacinamide U.S.P.	15 mg.	Dibasic Calcium Phosphate Anhydrous	0·535 Gm.
Folic Acid U.S.P.	1 mg.	Sodium Borate U.S.P.	0·88 mg.
Pyridoxine Hydrochloride (B_6) U.S.P.	0·5 mg.	Calcium Fluoride	0·205 mg.
Calcium Pantothenate U.S.P.	5 mg.	Cupric Oxide	1·250 mg.
Choline Bitartrate N.F.	50 mg.	Manganese Dioxide	1·58 mg.
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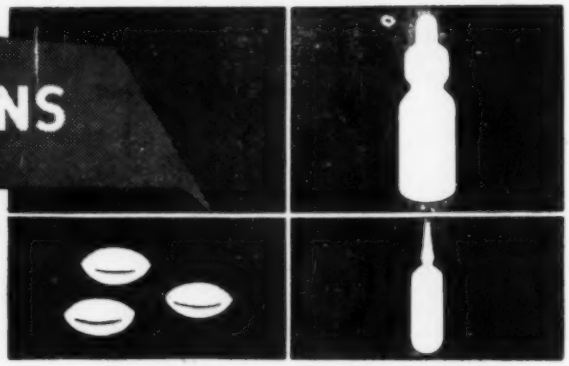

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at the annual meeting of the council shows that the membership fell by about 200 during the year. This was due to the re-organisation of the State Branch on the basis of re-organisation of States. There were no arrears of C.F.C. for the year 1957-58. Four meetings of the State Council were held. The position of the Madras Clinical Journal as recorded in the report showed considerable improvement both in contents and get-up.

MANDYA BRANCH—The annual general meeting of the branch was held on 28-9-58. Office-bearers for 1958-59 were elected with Dr. A. R. Sunder Rao as president, Dr. K. Ramchandra Rao as vice-president, Dr. D. Thammanna as hony. secretary and Dr. Y. S. Rama Rao as hony. joint secretary.

MEERUT BRANCH—The annual general meeting was held on 20-11-58. Fifty-nine members were present. Office-bearers for 1958-59 were elected with Dr. J. L. Caroli as president, Dr. Manohar Lal as secretary, Dr. Prem Chandra as joint secretary. The annual report of the branch for 1957-58 shows that total number of meetings held were 22 including 12 academic, 3 special, 3 social and 4 film shows. Twelve executive committee meetings were held. One emergent meeting was called on 4-5-58 to consider the improvement of sanitation of the town. In academic meetings, eminent doctors from outside were invited to address the meetings. The subscription per member was raised from Rs. 3/- to Rs. 3/8 only. The total membership strength was 95 on 2-11-57 and it increased to 98.

NABADWIP BRANCH—The annual report of the branch for 1957-58 shows that membership strength was 32. One annual general meeting and 10 ordinary general meetings were held. Three new members were enlisted. The members participated in the following (1) To decrease the excessive professional tax of medical practitioners of Nabadwip town, (2) helped to organise a training camp for St. John Ambulance.

NUNGI-BATANAGAR BRANCH—The annual report of the branch for 1957-58 shows that 7 meetings were held during the year. During Cholera and Smallpox epidemic the members took active part to meet the situation. Office-bearers for 1958-59 were elected with Dr. A. T. Paul as president, Dr. N. K. Mittra as vice-president, Dr. A. N. Roy as hony. secretary.

PALGHAT BRANCH—At tht annual general body meeting of the branch held on 23-11-58, office-bearers for 1958-59 were elected with Dr. K. Madhava Menon as president, Dr. P. N. Unnikrishnan Nair as vice-president, Dr. T. K. Kesavan Nair as hony. secretary and Dr. P. R. Parasurama Iyer as hony. associate secretary. The 2nd annual conference of the branch was inaugurated on 23-11-58 by the Governor of Kerala. In the scientific session which was presided over by Lt. Col. Pisharoti, Dean of the Koshikode Medical College, Drs. T. Thomas and P. Koshi of the Vellore Medical College spoke on Surgery of Congenital Cardio-Vascular Abnormalities and Certain Aspects of Atherosclerosis respectively.

POONA BRANCH—A meeting of the branch was held on 26-11-58. Dr. R. D. Pendse presided. Dr. C. R. Sule showed two cases of Malignant Tumours in Lungs. Dr. A. S. Ranade gave a talk on Management of Cough in its broader sense. Dr. Mrs. R. Master spoke on Management of Senile Psychotic Patients.

PUSAD BRANCH—The branch holds meeting every month and current topics of medicine are discussed. There are 9 members in all. Office-bearers for 1958-59 are Dr. N. B. Kalkar, president and Dr. M. M. Dubbewar, hony. secretary.

ROURKELA BRANCH—This branch has been formed on 1-10-58 with 24 members. Dr. E. K. K. Pillai and Dr. S. Samantaray were elected president and secretary respectively for the year 1958-59. A meeting was held on 19-9-58 with Dr. E. K. K. Pillai in the chair. Dr. S. Sen of Tata Main Hospital spoke on Ischaemic Diseases of the Heart.

MEMBERS OF THE ROURKELA BRANCH WITH DR. S. SEN

SECUNDERABAD BRANCH—At a general body meeting held on 30-11-58, office-bearers for 1958-59 were elected with Dr. B. Sreeramulu as president, Dr. G. Narasing Rao as vice-president, Dr. W. Narasing Rao as hony. secretary and Dr. K. Anantha Charya as joint secretary.

SHIMOGA BRANCH—A meeting of the branch was held on 22-11-58. Dr. D. Shamanna presided. The following case reports were read : (1) Tuberculous Meningitis by Dr. D. Krishna Murthy, (2) Folidol Poisoning by Dr. D. Shamanna, (3) Recto-vaginal Fistula and Hodgkins Disease by Dr. Sheikh Mohamad Pasha, (4) Carcinoma of the Upper Eyelid by Drs. Palakshappa and N. Bhadrachari.

SITAPUR BRANCH—A clinical meeting of the branch was held on 30-10-58. Dr. Partap Bahadur presided. Dr. J. M. Pahwa showed 2 cases of Tuberculous Meningitis with Blindness. Dr. M. P. Mehrey gave a talk on his experiences abroad.

SOUTH ARCOT BRANCH—The general body meeting of the branch was held on 23-8-58. Vice-presidents for the Madras State Branch were elected. Dr. S. Sankararaman spoke on the Problem of the Failing Heart.

The annual meeting of the branch was held on 20-9-58. Dr. Viswanathan presided. The annual report and accounts were adopted. Dr. A. S. Ramakrishnan of Stanley Hospital, Madras, spoke on Surgical Amoebiasis. Dr. A. L. Annamalai spoke on Portal Hypertension. Office-bearers were elected with Dr. K. G. Sadagopa Iyengar as president, Dr. K. Rangaswamy as vice-president, Dr. A. A. Shukoor as hony. secretary and Dr. N. V. Bhat as hony. joint secretary.

A meeting of the branch was held on 25-10-58 with Dr. K. G. Sadagopan in the chair. Dr. M. V. Bhat, Resident Medical Officer, Cuddalore gave a talk on the Vericose Veins of the Leg.

TARAKESWAR BRANCH—An ordinary meeting was held on 11-5-58 at Dasghera. Dr. H. S. Dutta spoke on Hypertension and Dr. B. Das read a paper on Hypertension of Pregnancy, based on the statistics of Chittaranjan Seva Sadan.

An ordinary meeting of the branch was held on 11-8-58. Thirty-two members were present. Dr. S. N. Mukherjee presided. Disadvantages of rural medical men were discussed. A paper on Leucorrhoea was read by Dr. B. Das.

An ordinary meeting was held on 2-9-58. Twenty-one members were present. Recent atrocities on medical men at S. N. Pandit Hospital and Sishu Swasthya Niketan were discussed. Attention of the Government was drawn to it.

The annual general meeting of the branch was held on 23-11-58. Forty members were present. Dr. S. N. Sen, professor of N. R. Sarkar medical college, attended the meeting. Office-bearers for 1958-59 were elected with Dr. S. N. Mukherjee as president, Dr. H. S. Datta, Dr. R. R. Paul and Dr. M. Bera as vice-presidents, Dr. R. K. Goswami as secretary and Drs. N. K. Dhara, C. S. Dhara as assistant secretaries.

THANA BRANCH—The office-bearers of the branch for 1958-59 include Dr. V. N. Vaidya as president, Dr. V. N. Bedekar as president, Drs. R. B. Pradhan and M. R. Vaidya as joint hony. secretaries.

TANJORE BRANCH—A meeting of the branch was held on 30-3-58. Dr. Ismail presided. Dr. V. Srinivasan spoke on Anginal Syndrome.

A meeting was held on 8-6-58. Dr. M. Ismail presided. Dr. R. Thyagarajan, Regional Malariologist, spoke on the National Malaria Eradication Programme.

A meeting was held on 27-7-58. The members condoled the death of Dr. M. R. Guruswamy. Dr. Sarala Krishnamurthy spoke on the Toxaemias of Pregnancy.

A meeting was held on 31-8-58. Dr. J. D. Kanakraj spoke on the Surgical Aspects of Peptic Ulcers. Dr. M. Ismail presided.

TIRUCHY BRANCH—An urgent meeting of the branch was held on 6-9-58. Dr. R. Sombasivam presided. Thirty-two members were present. The election of vice-presidents of the Madras State Branch was held.

The annual meeting of the branch was held on 26-10-58. Dr. L. S. Ramachandran presided. Seventy-five members were present. The members condoled the death of Kumari Maheswari, daughter of Dr. T. M. Krishnamurthy; Dr. C. R. Krishnaswamy of Madras, Dr. V. Iravatom of Madras and Shri V. Seshasayee, Dr. V. S. Subramanyam of Government General Hospital, Madras gave a talk on recent Advances in Ear Surgery. The annual report for 1957-58 was adopted. Office-bearers for 1958-59 were elected with Dr. R. Sambasivam as president, Dr. V. K. Ranganathan as secretary, Dr. M. V. A. Iswaram as joint secretary. In the afternoon session, Dr. R. Sambasivam presided. Dr. M. G. Prabhu of Government General Hospital, Madras, spoke on Bronchial Asthma and Tropical Eosiniphilia and Dr. K. S. Sanjeevi, of Madras Medical College on Common Diseases of the Liver. After tea, Dr. C. S. Sadasivam of Government General Hospital, Madras gave a talk on Surgical Management of Certain Heart Diseases and Dr. S. Nagaswamy of the same hospital, spoke on some Paediatric Problems. Both the lectures were followed by lantern slides.

The inaugural meeting of the branch was held on 13-12-58. Thirty-five members were present. Dr. R. Sambasivam presided. The meeting condoled the death of Shri Rajagopala Iyengar, the father of Dr. Kalamegham. Dr. P. Arunachalam of Madras gave a talk on Diseases of Thyroid Gland in private practice.

ULUBERIA BRANCH—A meeting of the branch was held on 27-9-58. Office-bearers for 1958-59 were held with Dr. Kazi Kazimuddin as president, and Dr. P. Chatterjee as secretary.

UTTAR PRADESH STATE BRANCH—The 24th annual meeting of the State Branch Council was held on 26-10-58 with Dr. S. S. Misra in the chair. The annual report and accounts were adopted. The following are the office-bearers for 1958-59: president—Prof. S. S. Misra, vice-presidents—Prof. R. N. Tandon, Dr. Bhatunath, Dr. Miss G. B. Kabraji; hony. state secretary—Dr. M. M. S. Siddhu; hony. state joint secretaries—Dr. R. N. Gupta and Dr. K. P. Mehrota.

A meeting of the Working Committee of the State Branch Council was held on 25-10-58. Prof. S. S. Misra occupied the chair. Sixteen members were present. Proceedings of the State Branch Working Committee meeting held on 17-8-58 and 7-10-58 were confirmed. The audited accounts, the secretary's annual report for 1957-58 were adopted. The budget for 1958-59 was approved. The names of 23 applicants for Post-Graduate Training and Internship in U.S.A., Canada and Ireland forwarded to Central Office, I.M.A., were mentioned. Dr. H. N. Shivapuri was requested to make a tour of the branches for collection of Building Fund, I.M.A.

An emergent meeting of the Working Committee of the State Branch Council was held on 7-10-58. Eight members were present. The secretary explained the position regarding Sales Tax after his correspondence with the government and he was asked to circulate a short note on this to the branches. The claim of the State of U.P. for allotment of Drug Industry in the Public sector was considered and it was decided to send a deputation of seven, to the Chief Minister and Health Minister, U.P.

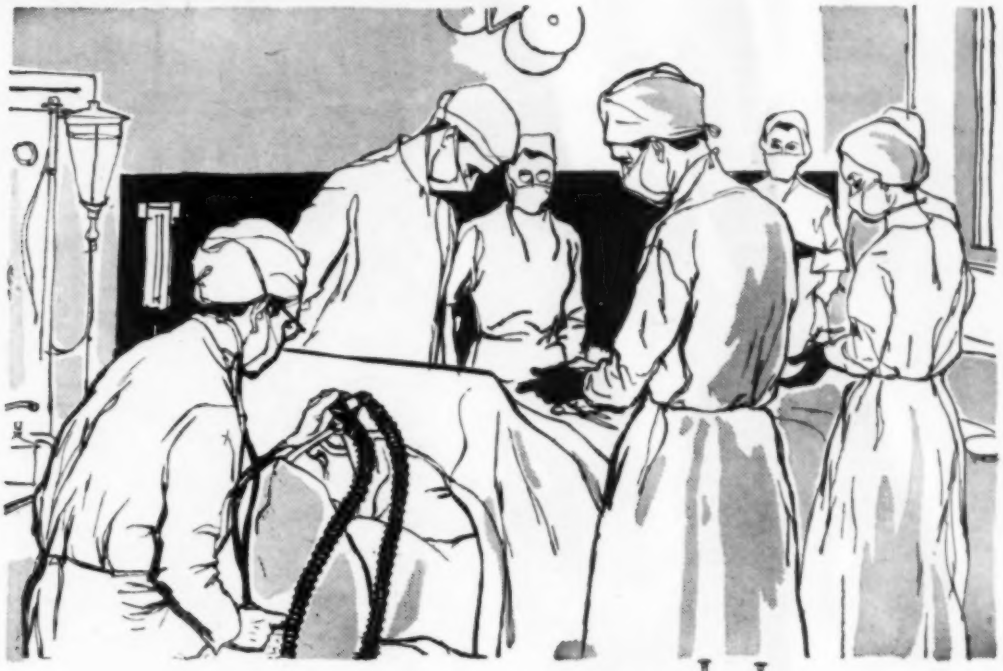
VISAKHAPATNAM BRANCH—The annual general body meeting of the branch was held at Ghodavaram with Dr. G. V. S. Murty in the chair. The annual report of the secretary and the treasurer report were passed. Office-bearers for 1958-59 were elected with Dr. G. V. Satyanarayanamurty as president, Dr. Govindarajulu as vice-president, Dr. A. Bapiraju as hony. secretary and Dr. K. Krishnamurty as joint secretary. Dr. G. V. S. Murty delivered the annual oration on Problems in Private Medical Practice.

VIJAPUR BRANCH—A clinical meeting was held on 30-11-58. The subject for discussion was Recent Advances in Medicine, Surgery and Gynaecology. Dr. S. Patel, Dr. Kusumlal, Dr. Munshi and Dr. Girish Shah participated in the discussion. Dr. P. R. Trivedi, hony. secretary of G. S. & Kutch Territorial branch, spoke on general working of I.M.A.

18TH BENGAL PROVINCIAL MEDICAL CONFERENCE.

The 18th Bengal Provincial Medical Conference will be held on the 7th and 8th March, 1959 at Banarhat Higher Secondary School (Multipurpose), Banarhat (Dooars), Dist. Jalpaiguri.

Scientific articles are invited from the members and they should reach Dr. R. N. Bose, Secretary, Scientific Section, 18th Bengal Provincial Medical Conference, Dooars, Bhatpara Central Hospital, P.O. Kalchini (Dooars), Dist. Jalpaiguri.



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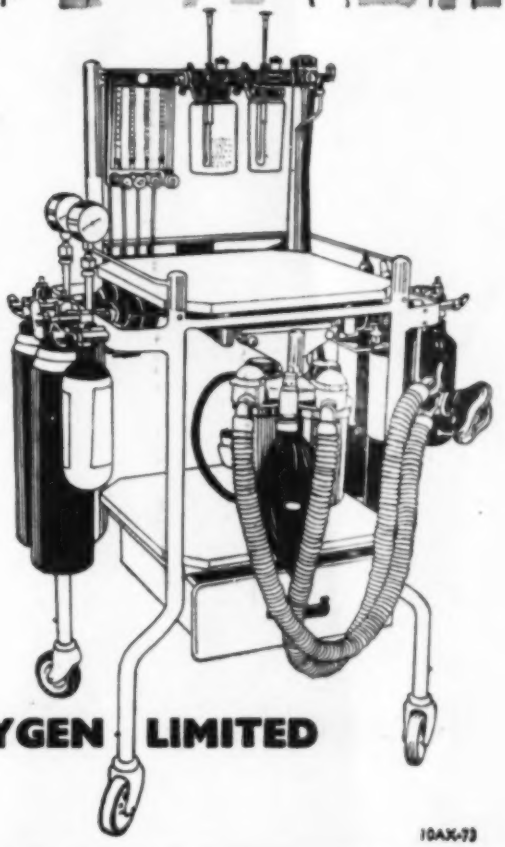

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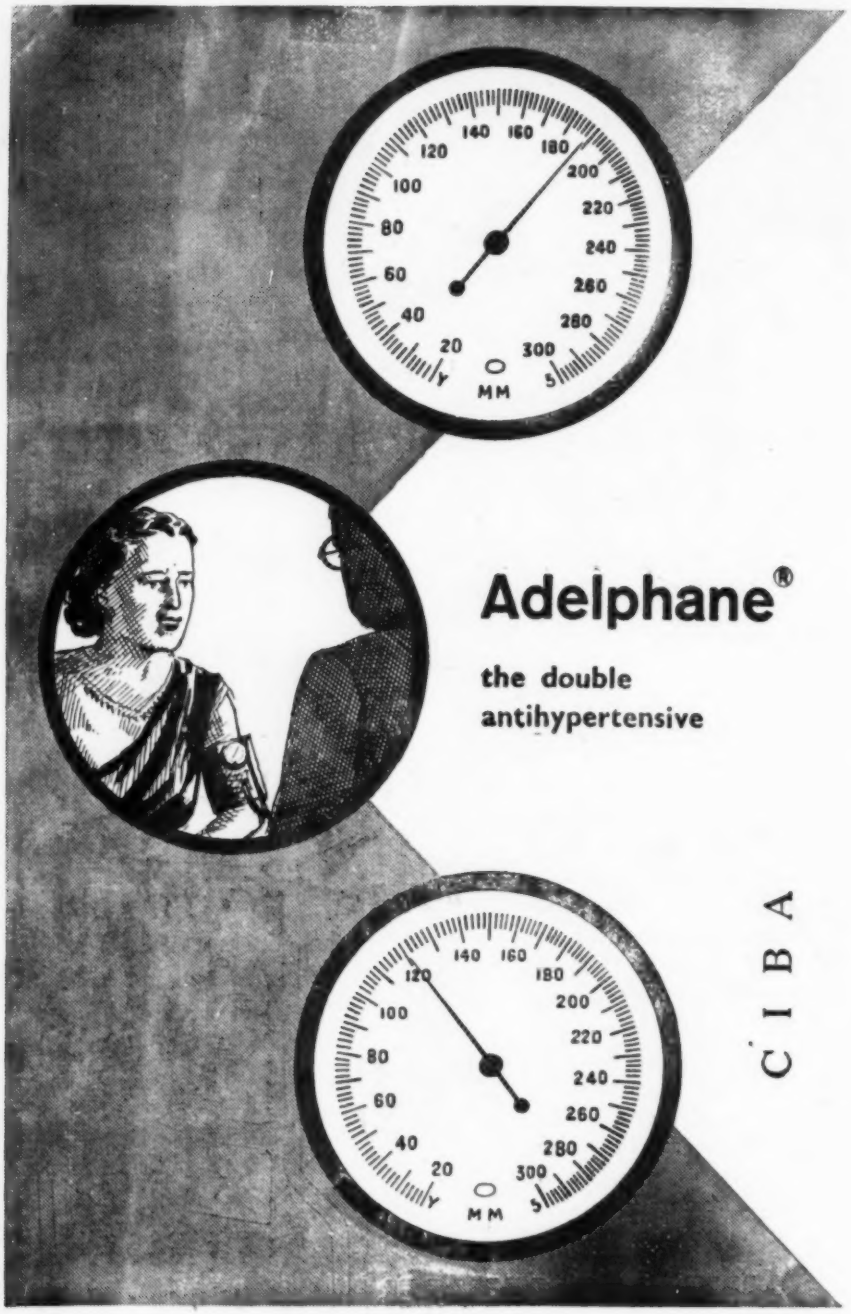
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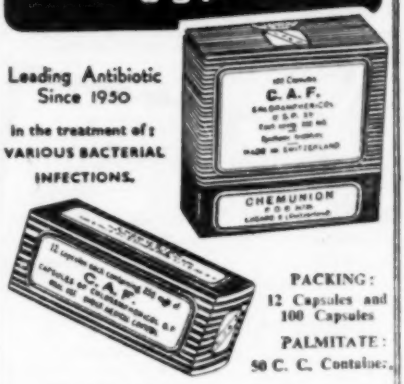

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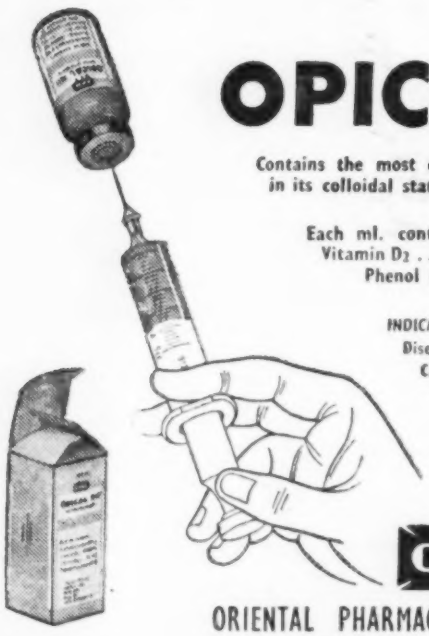

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1. *Lamphier, T.A.: Ann. N.Y. Acad. of Sc., 67:10, p. 810, May 1957.*

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"High fat diet—High blood cholesterol—ath ama—Coronary artery disease" **Ibid—page 558.**

(a) "Cholesterol becomes esterified with abnormal or unusually saturated fatty acids, and these abnormal esters are less readily disposed of and so cause atheroma.

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H. M. Sinclair—Lancet April 7, 1956.

"Thus, in tissue cultures of human aortic cells, deposition of lipoid can be induced by cholesterol, **is reversible**, can be inhibited by an unsaturated fatty acid (linolenic acid), and can be potentiated by the corresponding saturated fatty acid (stearic acid).

D. D. Rutstein, E. F. Ingenito et al—Lancet, 15 March 1958.

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NOTICE

It has been decided at the last annual meeting of the Central Council of the I.M.A. held at Cuttack during the sessions of the XXXV All-India Medical Conference that Branch and Association notes intended for publication in the "Journal of the I.M.A." should, in future, be sent direct to the Central Office at Delhi instead of to the Journal Office as heretofore.

The Hony. General Secretary at the Central Office will compile the Branch Notes received from the various Branches and transmit them on to the Journal Office for publication in due course in the pages of the Journal Supplement reserved for the purpose. This will take effect from 1.2.59.

The Hony. Secretaries of all branches of the I.M.A. are, therefore, requested to send their branch news and notes for **publication**, to the Central Office at Delhi, with a copy to the State or Territorial Branch concerned.

P. K. Guha,
Hony. Editor,
Journal of the I.M.A.

A. P. Mittra,
Hony. General Secretary,
Indian Medical Association

The February 16 issue of the Journal will be the Conference Number

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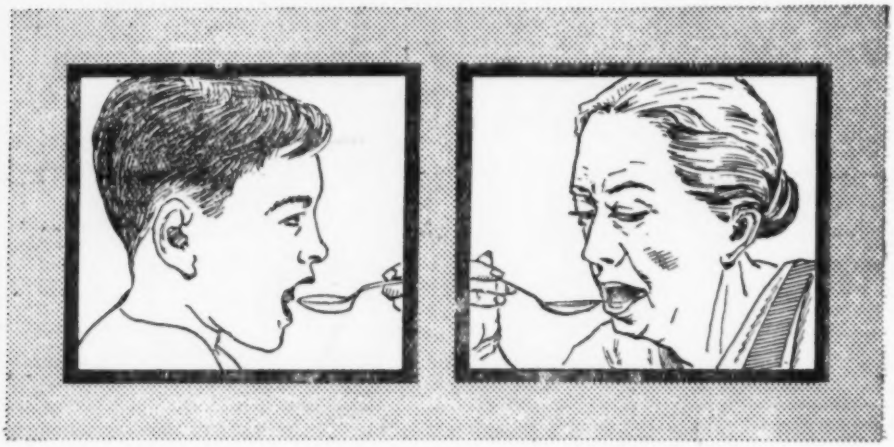

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